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Feature Item

Featured Item: *“The North Korea Instability Project: Overview of North Korea’s NBC Infrastructure”*. Written by Joseph S. Bermudez Jr, published by 38 North; June 14, 2017

<http://www.38north.org/wp-content/uploads/pdf/NKIP-Bermudez-Overview-of-NBC-061317.pdf>

During the past 40+ years North Korea has consistently pursued expanding its nuclear, biological and chemical (NBC) programs with impressive single-mindedness and determination, and fully in line with its national philosophy of *juche* (self-sufficiency). Available information indicates that North Korea: possesses—or will soon possess—operational nuclear weapons and continues to develop such weapons; possesses an ongoing offensive biological weapons research program, may possess an inventory of these weapons and continues to conduct research into new capabilities; and possesses a longstanding chemical weapons program with a militarily significant inventory of such weapons, and continues to conduct research into more advanced chemical weapons.

To achieve its current level of technology and proficiency, North Korea has overcome numerous and significant obstacles to develop extensive diversified infrastructures to conduct NBC research and development, testing and weapons production. An understanding of these infrastructures is essential in mitigating NBC weapons usage during periods of instability, preventing onward proliferation and in planning and conducting operations to locate, secure and eliminate NBC capabilities when the need arises.

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The National Interest (Washington, DC)

1,032 Weapons Tests Made America a Nuclear Superpower (But at a Crazy Cost)

By Kyle Mizokami

June 12, 2017

U.S. nuclear testing ceased in 1992. In 2002, the Centers for Disease Control estimated that virtually every American that has lived since 1951 has been exposed to nuclear fallout, and that the cumulative effects of all nuclear testing by all nations could ultimately be responsible for up to eleven thousand deaths in the United States alone. The United States did indeed learn much about how to construct safe and reliable nuclear weapons, and their effects on human life and the environment. In doing so, however, it paid a terrible and tragic price.

Nuclear weapons have a mysterious quality. Their power is measured in plainly visible blast pressure and thermal energy common to many weapons, but also invisible yet equally destructive radiation and electromagnetic pulse. Between 1945 and 1992, the United States conducted 1,032 nuclear tests seeking to get the measure of these enigmatic weapons.

Many of these tests would be today be considered unnecessary, overly dangerous and just plain bizarre. These tests, undertaken on the atomic frontier, gathered much information about these weapons—enough to cease actual use testing—yet scarred the land and left many Americans with long-term health problems.

The majority of U.S. nuclear tests occurred in the middle of the Western desert, at the Nevada Test Site. The NTS hosted 699 nuclear tests, utilizing both above-ground and later underground nuclear devices. The average yield for these tests was 8.6 kilotons. Atmospheric tests could be seen from nearby Las Vegas, sixty-five miles southeast of the Nevada Test site, and even became a tourist draw until the Limited Test Ban Treaty banned them in 1963. Today the craters and pockmarks from underground tests are still visible in satellite map imagery.

The bulk of the remaining nuclear tests took place in Pacific, at the islands of Bikini, Enewetak, Johnson Island and Christmas Island. The second nuclear test, after 1945's Trinity Test, took place at Bikini Atoll. The Pacific tests were notable not only for their stunning visuals, the most compelling imagery of nuclear weapons since Hiroshima, but also the forced relocation of native islanders. Others that were near tests were exposed to dangerous levels of radioactive fallout and forced to flee. In 1954, the crew of the Japanese fishing boat Daigo Fukuryu Maru accidentally sailed through fallout from the nearby fifteen-megaton Castle Bravo test. Contaminated with nuclear fallout, one crew member died, and the rest were sickened by radiation.

The first test of a thermonuclear, or fusion, bomb took place on November 1952 at Enewetak Island. Nicknamed Ivy Mike, the huge eighty-two-ton device was more of a building than a usable nuclear device. The device registered a yield of 10.4 megatons, or the equivalent of 10,400,000 tons of TNT.

(Hiroshima, by contrast, was roughly eighteen thousand tons of TNT.) Ivy Mike was the biggest test by far, creating a fireball 1.8 miles wide and a mushroom cloud that rose to an altitude of 135,000 feet.

One of the strangest atmospheric tests occurred in 1962 at the NTS, with the testing of the Davy Crockett battlefield nuclear weapon. Davy Crockett was a cartoonish-looking recoilless rifle that lobbed a nuclear warhead with an explosive yield of just ten to twenty tons of TNT. The test, code-named Little Feller I, took place on July 17, 1962, with attorney general and presidential adviser Robert. F. Kennedy in attendance. Although hard to believe, Davy Crockett was issued at the battalion level in both Germany and North Korea.

Also in 1962, as part of a series of high-altitude nuclear experiments, a Thor rocket carried a W49 thermonuclear warhead approximately 250 miles into the exoatmosphere. The test, known as Starfish Prime, had an explosive yield of 1.4 megatons, or 1,400,000 tons of TNT, and resulted in a large amount of electromagnetic pulse being released over the Eastern Pacific Ocean. The test, conducted off Johnston Island, sent a man-made electrical surge as far Hawaii, more than eight hundred miles away. The surge knocked out three hundred streetlights and a telephone exchange, and caused burglar alarms to go off and garage doors to open by themselves.

Nuclear tests weren't just restricted to the Pacific Ocean and Nevada. In October 1964, as part of Operation Whetstone, the U.S. government detonated a 5.3-kiloton device just twenty-eight miles southwest of Hattiesburg, Mississippi. The test, nicknamed Salmon, was an experiment designed to determine if nuclear tests could be detected by seismometer. This was followed up in 1966 with the Sterling test, which had a yield of 380 tons.

In 1967, as part of a misguided attempt to use nuclear weapons for peaceful purposes, the United States detonated a nuclear device near Farmington, New Mexico. Project Gasbuggy was an early attempt at nuclear "fracking," detonating a twenty-nine-kiloton nuke 4,227 feet underground just to see if the explosion would fracture surrounding rock and expose natural-gas reserves. The experiment was unsuccessful. Two similar tests, Rulison and Rio Blanco, took place in nearby Colorado. Although Rulison was a success in that it uncovered usable gas reserves, the gas was contaminated with radiation, leaving it unsuitable for practical commercial use.

A handful of nuclear tests were conducted in Alaska, or more specifically the Aleutian island of Amchitka. The first test, in October 1965, was designed to test nuclear detection techniques and had a yield of eighty kilotons. A second test occurred four years later, and had a yield of one megaton, or one thousand kilotons. The third and largest test, Cannikin, was a test of the Spartan antiballistic-missile warhead and had a yield of less than five megatons.

During the early years of nuclear testing it was anticipated that nuclear weapons would be used on the battlefield, and that the Army and Marine Corps had better get used to operating on a "nuclear battlefield." During the 1952 Big Shot test, 1,700 ground troops took shelter in trenches just seven thousand yards from the thirty-three-kiloton explosion. After the test, the troops conducted a simulated assault that took them to within 160 meters of ground zero. This test and others like them led to increases in leukemia, prostate and nasal cancers among those that participated.

U.S. nuclear testing ceased in 1992. In 2002, the Centers for Disease Control estimated that virtually every American that has lived since 1951 has been exposed to nuclear fallout, and that the cumulative effects of all nuclear testing by all nations could ultimately be responsible for up to eleven thousand deaths in the United States alone.

The United States did indeed learn much about how to construct safe and reliable nuclear weapons, and their effects on human life and the environment. In doing so, however, it paid a terrible and tragic price.

<http://nationalinterest.org/blog/the-buzz/1032-weapons-tests-made-america-nuclear-superpower-crazy-21117>

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Bulletin of the Atomic Scientists (Chicago, IL)

What Participants in a Nuclear Weapons Ban Treaty (Do Not) Want

By Sira Cordes, Oliver Meier and Elisabeth Suh

June 9, 2017

Supporters of a ban treaty hailed the first week of negotiations as a resounding success. Indeed, the fact that more than 115 states' representatives showed up at negotiations on a "legally binding instrument to prohibit nuclear weapons, leading towards their total elimination" has changed the international nuclear landscape. Even those who believe that a ban treaty will not contribute to international security cannot ignore the undertaking.

Still, it is less clear what kind of instrument participants would like to see agreed. On May 22, conference President Ambassador Elayne Whyte Gómez of Costa Rica presented her Draft Convention on the Prohibition of Nuclear Weapons. The 8-page paper will be subject of intense scrutiny when negotiations resume June 15-July 7 at the UN headquarters in New York.

Only then will it become apparent how much participants in the negotiations are willing to compromise. Will they pursue an accord, even if this turns out to be politically costly? Such questions will ultimately be answered only when negotiations have concluded. An analysis of statements made during the first week of negotiations allows, however, a snapshot of starting positions of participants. Based on a coding of official statements delivered during the March session of ban treaty talks, we've mapped the positions of participants on some key issues and briefly contrasted them with the draft convention.

Such an analysis comes with caveats. Of the 163 statements delivered, we analyzed 101, namely those that are available online at the United Nations and ReachingCriticalWill websites in English, French, or Spanish. Coding necessarily implies simplification. Reading statements is insufficient for drawing conclusions about the absolute importance a government attaches to a certain topic. As is common during multilateral negotiations, states may want to keep cards close to their chests. Many delegations will be more inclined to highlight issues they want to achieve, rather than things they want to prevent.

This article therefore does not aim to chart comprehensively and in depth the positions of participants in the ban treaty talks. Rather, it aims for a comparative analysis of statements. A look at the relative importance participants attach to certain issues, compared to other topics, is indicative of where the focus of a ban treaty might be. Disagreement on specific issues can be indicative of possible fault lines in the negotiations. In general, an objection articulated at an early stage in talks is harder to reverse than a dissenting viewpoint put forward during the end game.

The setting. The talks on a ban treaty differ from many other multilateral negotiations in at least two ways. First, the bandwidth of positions is narrower than could normally be expected. None of the states fundamentally critical of or opposed to a ban treaty took part in the March session. (The exception is the Netherlands, which sent a delegation to New York after the Dutch Parliament urged

the government to do so. Japan came to New York only to say goodbye and explain why it would not participate in the negotiations.)

Second, time for talks on a ban treaty is short. Negotiations are expected to be concluded in July, with a bare four weeks for actual negotiations. Proponents of a ban treaty argue that a prohibition of nuclear weapons is feasible because the international community also came together to outlaw other weapons, including weapons of mass destruction. But these undertakings took comparatively more time. Negotiations on the Biological Weapons Convention took three years (1969-1972) ; the Chemical Weapons Convention was concluded between 1984 and 1992. Even the Ottawa process took 14 months to hammer out the Anti-Personnel Mine Ban Convention (October 1996-December 1997) and the Oslo process leading to the Convention on Cluster Munitions lasted 12 months (May 2007-May 2008). Referring to the lengthy discussions on the Arms Trade Treaty, which took two years (2010-2012) to negotiate, Colombia asked “if we are acting at the right speed and in the time required” on a nuclear weapons ban.

The debate. The participation of more than 115 states is a remarkable sign of support for a ban treaty. However, only some of those countries actually contributed to the debate in March. About half of the participants (58) spoke during the first week of negotiations and only a quarter (34) took the floor more than once. About 20 percent of participants spoke during all four segments (general debate, principles and objectives, core prohibitions, institutional arrangements) of the debate. Of course, there may be many reasons why a state may decide not to speak or to take the floor only selectively. Still, the different levels of engagement are an indication that not all delegations have invested the same amount of energy in a ban treaty.

Areas of agreement: core prohibitions.

The largest degree of agreement among participants exists around the core prohibitions of a ban treaty. These are at the heart of a future accord. More than half of the delegations that took the floor stated that the treaty should ban the possession, use, acquisition, production, and deployment of nuclear weapons. Slightly less support was given to the treaty banning transfer and stockpiling of nuclear weapons. (See Table 1 in the slideshow at the top of this article.)

The conference president, Ambassador Elayne Whyte Gomez of Costa Rica, saw “a good level of convergence among the delegations, especially on the core prohibitions,” and her draft includes all of the issues mentioned above, as well as prohibitions on the development and transfer of nuclear weapons. To carve out these prohibitions, Gomez borrowed much language from Articles 1 and 2 of the Nuclear Non-Proliferation Treaty (NPT).

Areas of possible disagreement: Assistance, nuclear weapons use, sharing.

Participants in the March session voiced little support for prohibiting countries from assisting nuclear weapons states and/or nuclear weapons programs. Such assistance was described as possibly entailing financial or technological support or the “encouragement” of nuclear weapons-related activities. Some states cautioned that including “assistance” could raise tricky definitional issues and may also be difficult to monitor. Yet, the May 22 draft suggests that states parties would be obligated to never, under any circumstances, “assist, encourage, or induce, in any way, anyone to engage in any activity prohibited to a State Party under this Convention” or to seek or receive such assistance.

Prohibiting the threat of use of nuclear weapons was one of the contentious issues in discussions leading up the ban treaty talks. Many NATO non-nuclear weapon states believe that a prohibition of nuclear threats “under any circumstances” would be incompatible with their alliance obligations. NATO’s defense posture is partly based on nuclear deterrence.

From the perspective of Alliance members, effective deterrence must be built on credible nuclear threats. An overview of statements delivered in March indicates that the issue continues to be controversial: Less than half of the states that took the floor actively supported the inclusion of the threat of use of nuclear weapons in a future accord. The draft convention introduced by the conference president sidesteps this issue and does not mention the threat of use of nuclear weapons at all.

The role of US nuclear allies and their participation in NATO nuclear sharing arrangements was a high-profile issue in the debate ahead of ban treaty negotiations. Some treaty proponents singled out nuclear allies as “weasel states” because of their involvement in nuclear sharing arrangements. Only a handful of countries explicitly suggested that participation in nuclear planning and sharing arrangements should be outlawed by a future ban treaty. A prohibition of the modernization of nuclear forces received even less support, with only three states mentioning it. Of all the major issues raised during the debate on the scope of a ban treaty, nuclear sharing and nuclear modernization are among those that received the least support. (See Table 2 above.) The draft convention suggests that future state parties would prohibit and prevent “[a]ny stationing, installation or deployment of any nuclear weapons or other nuclear explosive devices” on their territory but does not explicitly propose to ban nuclear sharing. It would also not curtail nuclear weapons modernization.

Area of disagreement: verification.

Participants in the March talks hold divergent views on what kind of verification and control mechanisms a future ban treaty should entail. This problem has at least two aspects, on which there was relatively little agreement among ban treaty talk participants. (See Table 3 above.)

First, there is a debate on whether and how a ban treaty should be linked to verifiable nuclear weapons reductions. A few states argued that a ban treaty should establish or contain a general framework for nuclear disarmament. Egypt, for example, proposed that the treaty text should set the “timeframes for verifiable nuclear disarmament, [including for the] ... total and irreversible elimination of nuclear weapons under effective multilateral verification and control.” There are different views among participants on the related question of how a future ban treaty should deal with nuclear weapon possessors that accede to the accord. Ireland, the Philippines, and Sweden were among those that argued in favor of specifying the disarmament obligations of nuclear weapon possessors, including through provisions for the monitoring of nuclear warhead destruction. These could be elaborated in the treaty itself or in separate protocols. For example, Ireland suggested that states that “possess [nuclear weapons] who wish to accede to the new treaty will have to provide a statement of their current stockpile, as well as a proposed time-bound plan, for the removal of the weapons from operational stockpiles and their destruction.” Others, like Malaysia, argued that “as the instrument is envisaged as generally being a prohibition treaty, compliance would not have to require detailed procedures at this stage.”

The convention draft leaves the problem of how to verify nuclear weapon programs largely unresolved. It obliges all states to declare whether they have possessed nuclear weapons after December 5, 2001 (the date when Russia and the United States had fulfilled START I obligations and Belarus, Kazakhstan and Ukraine, as former Soviet Union states, had become nuclear weapons-free). If a state that answers affirmative but has eliminated its nuclear weapons before joining a ban treaty, the IAEA is supposed to verify the nuclear weapons-free status, just like it had done successfully in South Africa in the 1990s. The problem of how to deal with “any remaining nuclear weapon programmes” will have to be solved by future ban treaty member states.

Also, there appears to be no consensus on whether non-nuclear weapon states that join a ban treaty should be obliged to accept IAEA safeguards. Less than half of the delegations that took the floor in

March suggested that the ban treaty should establish a connection between the IAEA verification system and the future ban treaty. A range of opinion exists on how safeguards would be applied. Some, like Sweden, suggested that a requirement to accept the Additional Protocol to IAEA Safeguards would be “cost effective and non-duplicating form of verification.” Others believe that the treaty should contain a stand-alone verification instrument, which could be “inspired from the regimes of the [International Atomic Energy Agency] and [Comprehensive Nuclear-Test-Ban Treaty Organization],” as Algeria argued.

The draft convention contains obligations for ban treaty members to accept the same full-scope safeguards that are mandatory for non-nuclear weapon states parties to the NPT—or conclude a safeguards agreement that is “equivalent in its scope and effect.” It is not clear what those equivalent arrangements might be and how they would relate to the NPT or what the role of the IAEA is.

Relationship with other international instruments.

The debate on whether to oblige ban treaty members to accept IAEA safeguards (which is a legal requirement for all non-nuclear weapon states that join the NPT) is linked to the broader, important, and controversial issue of the relationship between a ban treaty and the existing disarmament, arms control, and nonproliferation regime. Participants in the general debate agreed that a ban treaty should complement and support the NPT and that it should not establish a competing norm. But the devil is in the detail. Participants mentioned at least four existing multilateral frameworks which overlap with a future ban treaty:

The NPT contains various obligations, including Article VI on nuclear disarmament and verification of non-nuclear weapon states through safeguards in Article III. Many states argued that duplication of existing obligations should be avoided, but only a few participants argued in favor of creating direct linkages to the NPT, for example in the preamble to a future ban treaty. The May 22 draft contains references to the NPT in its preamble. Article 19 on the convention’s “relations with other agreements” suggests merely that the accord “would not affect the rights and obligations of the States Parties under the [NPT].”

The United Nations Charter contains a prohibition of the threat of force which would potentially overlap with the prohibition of the threat of use of nuclear weapons. Mexico stated that it would “constitute an absurdity” to include a ban on the threat of use of nuclear weapons, “since it would challenge the integrity and scope of the standard already codified” in the UN Charter. The draft convention does not mention the threat of use of nuclear weapons, but in the preamble, states parties would pledge to “contribute to the realization of the purposes and principles of the Charter of the United Nations.”

The Comprehensive Nuclear Test Ban Treaty (CTBT) comprehensively prohibits nuclear weapon test explosions (and thus also inhibits nuclear weapons development efforts). Yet, some would also like to see testing covered by a ban treaty. Costa Rica and Cuba wanted to expand on the CTBT by including simulations and subcritical testing. These suggestions did not make it into the draft convention. The text, however, duplicates the CTBT’s core prohibitions by stating that parties would not be allowed to carry out “any nuclear weapon test explosion or any other nuclear explosion.”

Various nuclear weapon free-zone treaties outlaw the transit of nuclear weapons through national territories on zone member states. There is broad support among participants that a ban treaty should contain similar obligations for states parties, with Mexico arguing that a “ban treaty is a global extension of the various treaties establishing nuclear-weapon-free zones.” The draft convention does not mention transit of nuclear weapons.

Out of step or one step away from a ban treaty? The big question ahead is whether the ban treaty talks can and should be finished at the next session, by July 7. The mandate of the talks calls for negotiations to be concluded “as soon as possible,” but in the world of diplomacy, soon can mean many things. On this issue, too, divergent views were apparent. For example, Switzerland argued that “haste should not be [the] guide” to negotiations, while Austria and Malaysia were among those that would like to finish talks this year.

The latter may fear that the window of opportunity for successful negotiations of a ban treaty is closing. The nuclear weapon states have been putting immense pressure on non-nuclear weapon states not to support a ban treaty. The longer the talks go on, the greater the risk that these pressures come to bear. Also, many nuclear weapon states are increasing reliance on nuclear weapons. The Trump administration has begun its nuclear posture review, which might be concluded as early as the end of this year. Against this background of a growing role for nuclear weapons in international security, skepticism about the ban treaty approach may grow.

To preempt such a loss of political momentum, some support agreement by July on a short, lean, declaratory accord that establishes the norm against nuclear weapons and their use. However, the opening week highlights at least three factors that may complicate a swift conclusion of ban treaty negotiations:

First, there is lack of a clear group structure. In multilateral talks, such political or regional groupings can facilitate agreement because they “bundle” divergent positions. Pre-negotiations often result in a middle ground which then provides a starting point for talks among the broader group of states. No such groups have emerged during the first week of negotiations. Key players from the Western Group as well as the Eastern European Group were absent, and the groups were dysfunctional. The non-aligned movement also did not deliver a joint statement. Some regional and political UN groups of member states from the global South played a role. But these joint positions often merely described the lowest common denominator among their respective member states. Such groups are therefore unlikely to be catalysts for substantive compromises among participants at large. (See Table 4.)

Second, some important participants could turn out to be spoilers. Iran played the most controversial role by, for example, trying to use rules of procedure to restrict access by NGOs. Tehran also insists that a “prohibition of nuclear weapons must be accompanied by the elimination of such weapons,” thus challenging the notion that a ban treaty be primarily a norm-setting exercise. Iran recently has complicated agreement in other multilateral arms control talks. It is feasible that Tehran might complicate agreement on a ban treaty, too.

To be sure, the fact that a two-thirds majority is sufficient to adopt a ban treaty makes it easier from a legal perspective to circumvent spoilers. But voting among like-minded states may confront ban treaty proponents with a political dilemma. The move away from the consensus rule was justified with the need to deny nuclear weapon states (and their allies) the opportunity to block agreement, by abusing the consensus rule. Using majority voting to sideline one or more self-declared proponents of a ban treaty is quite another thing.

Third, opinion leaders in the humanitarian movement appear to be out of sync on some major issues. The positions of key countries like Austria, Brazil, Egypt, Ireland, Mexico, New Zealand, South Africa, and Sweden differ considerably, including on the key question of what a future ban treaty should prohibit. Whether and how they get their act together will be a key factor influencing when and how negotiations are concluded. (See Table 5.)

Always look on the bright side: extending talks beyond 2017. Participants in the ban treaty talks face a dilemma. Agreement on a short, lean, declaratory ban treaty by July may be feasible but

possibly only at the cost of bypassing some of the more contentious issues. Such a course of action might reduce the accord's legitimacy, if the deal in the end ignores the preferences of key participants.

On the other hand, continuing negotiations beyond July carries the risk of losing the drive behind a ban treaty. Additional practical hurdles may also surface. For example, an extension of the talks would require the UN General Assembly to approve additional funding for future meetings.

The draft convention proposed by the conference president seems to be a mix of both options. The text is relatively short but it kicks certain issues (particularly those that are verification-related) down the road and is sufficiently vague on others (such as relations with the NPT and other international instruments) to not offend anybody.

Against this background, an extension of the talks would certainly have its advantages. First, it would afford participants more time to develop a treaty that better accommodates diverging positions. Second, more thorough discussions would facilitate agreement on a treaty that "sits better" within the existing arms control, disarmament, and nonproliferation regime.

Finally, extended talks could provide an opening for states that have so far not participated. Some countries, including Germany, decided not to participate in the ban treaty talks mainly because of substantive differences over the right approach on nuclear disarmament. But there is also a concern that there would be no opportunities to influence the shape of a ban treaty because supporters appear to have "pre-cooked" the treaty text. The wide variety of views on some key issues that surfaced during the first week does not support this view.

Maybe more important, the positions of ban treaty supporters on some of the "red lines" highlighted by US allies—namely a prohibition of nuclear sharing arrangements and a ban on the threat of use of nuclear weapons (also known as "nuclear deterrence")—are not clear-cut. The relation between a future ban treaty and the broader nonproliferation regime (and particularly the NPT), another key concern of the so-called progressive states, is not decided yet.

Put positively: Should ban treaty talks continue beyond July, it is very likely that there will be opportunities to engage on issues of importance to allies of nuclear weapon states. If participants in ban treaty talks opt for thorough and inclusive discussions of issues where consensus does not yet exist, NATO non-nuclear weapon states should take a fresh look at their decision to stand on the sidelines of negotiations. From the perspective of the states participating in the talks, the involvement of nuclear weapon-states' allies could increase the ban treaty's political significance and legitimacy. It would also be a blow to nuclear weapon states.

<http://thebulletin.org/what-participants-nuclear-weapons-ban-treaty-do-not-want10829>

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Breaking Defense (New York, NY)

Feinstein Presses Mattis on LRSO; Mattis Still Thinking

By Colin Clark

June 14, 2017

One of the most controversial new weapons in the US arsenal, the Long Range Standoff cruise missile (LRSO), meant to replace the Air Launched Cruise Missile, came under direct fire by a top Senate defense and intelligence lawmaker, Sen. Dianne Feinstein.

The senior California senator holds seats both on the Senate Appropriations defense subcommittee and the Senate Intelligence Committee and is respected on both sides of the aisle for her command of the facts. Why did she question Defense Secretary Jim Mattis so closely during a Senate Appropriations defense subcommittee hearing about a proposed nuclear weapon that, at first glance, seems to be a replacement of an existing system?

"I believe it is in fact a new nuclear weapon," Feinstein told Mattis, saying much of what informed her opinion was classified. "It's got features which concern me greatly. I don't see it as an effective deterrent weapon. I see Russia taking action to counter it." And, just to make sure Mattis understood she really did have a problem with its development, she added that LRSO's "cost is going to be inordinate."

Of course, one lawmaker's inordinate cost may be another's irreplaceable deterrence tool. Mattis is not yet in either camp. Back in January, Mattis signaled he harbored doubts about the need for LRSO. "I need to look at that one," he said then. "My going in position is that it makes sense, but I have to look at it in terms of its deterrence capability."

LRSO is in the early stages of development, but it is already slated to get \$451 million in 2018.

Mattis' position didn't seem to have changed much five months later, but this administration has not completed its national security review so he appears to be still gathering information. One of our contributors, Rebecca Heinrich, penned an op-ed on how Trump should handle the Russians on nuclear arms. Heinrich, an expert on missile defense and nuclear weapons affiliated with the Hudson Institute, said that when Mattis "receives his briefings on LRSO he'll discover it will be critical for stealthily clearing the way for a bomber with great precision and low nuclear yields, and it can be launched from a safe distance."

Mattis did seem to echo some of those arguments in his answer: "We've got to make sure the bombers can get through," he told Feinstein. A central issue is "how can we keep the bomber survivable."

Ironically, the Obama Administration, supposedly advocates of getting the US military down to zero nuclear weapons, voiced strong and consistent support for the LRSO.

There was one final and possibly revealing comment by Feinstein to Mattis about her concerns about the weapon, and I'm betting it comes very close to the classification red lines. "You will look at its range, as well as our ability to abort it?" she asked. The safe assumption is Mattis will.

<http://breakingdefense.com/2017/06/feinstein-presses-mattis-on-lrso-mattis-still-thinking/>

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Grand Forks Herald (Grand Forks, ND)

STRATCOM Leader Advocated For Airmen, Modernizing Nuclear Triad

By Eloise Ogden

June 11, 2017

Gen. John E. Hyten, who became commander of U.S. Strategic Command several months ago, says the best part of his job is to meet and visit with the airmen, as he did earlier this week while at Minot Air Force Base.

"I get to lead them and I get to try to get them the things they need to do their job but fundamentally they do all the work," he said.

Hyten, a four-star general, was at Minot Air Force Base Tuesday to honor the men and women of the 5th Bomb Wing with the presentation of the Omaha Trophy, an award for being the 2016 outstanding strategic bomber unit. While at the base he also recognized some airmen from various units for their hard work and presented each with Commander's Coins.

To the Minot community, Hyten said the Minot AFB bomb wing achieving the Omaha Trophy is significant.

"It means you are hosting the best bomber wing in the entire United States Air Force. That means to me the best bomber wing in the entire world because there's no better Air Force in the world than ours so to be the best bomber wing in the entire world is an amazing achievement," Hyten said.

He said the 5th Bomb Wing people keep their 27 B-52 bombers going at all times.

"They deliver the capability and it's all about the capability. We need to make sure our adversaries are aware that the capability is here and we'll always be ready, and they are," Hyten said.

David Peterson, president and chief executive of the Omaha Chamber of Commerce who also participated in the trophy presentation ceremony, said the U.S. Strategic Competition Committee started the award with the former Strategic Air Command 46 years ago to honor the best of the best.

"We have the honor as being members of the committee to accompany the trophy and present it to the commands that have earned that distinct honor each year. This was my turn this year so I'm honored to be here to present the trophy to the bomber wing," he said.

Miles away in the Middle East, B-52 bombers from the Minot bomb wing's 23rd Bomb Squadron are flying missions in support of Operation Inherent Resolve, the fight against ISIS. It's the first time in 12 years that aircraft from the Minot base have been deployed to support combat operations.

"The bombers are doing great. It just is a testament to the airmen that fly them and maintain them that that bomber still strikes fear in the hearts of adversaries and delivers the mission every day," said Hyten in an interview at the Minot base Tuesday.

"When I joined the Air Force 36 years ago who would have thought the B-52 and B-1 bombers would be two of the best close air support weapons in the military. But it's true because of the innovation and abilities of airmen like we have here at Minot," he said.

Hyten became commander of U.S. Strategic Command, the command in charge of nuclear, space and cyber defenses, in November 2016. He replaced Navy Adm. Cecil Haney, who retired from the military. The command has its headquarters at Offutt AFB, Neb. Prior, Hyten was commander of Air Force Space Command at Peterson AFB, Colo., from August 2014-October 2016.

Hyten's visit to Minot AFB took place on the 73rd anniversary of D-Day, the landing of U.S. military members at Normandy during World War II.

A strong advocate of the nuclear triad — land-based intercontinental ballistic missiles, strategic bombers and submarine-launched ballistic missiles — Hyten said the triad has kept the security of this nation since it was created in the 1960s.

"Because of the three elements of the triad no nation has felt like they can get away with a surprise attack against the United States because one element of the triad will always be ready to respond," he said.

"The ICBMs that we have here are the most ready element, the bombers that we have here are the most flexible, the submarine element is the most survivable and when you put those three together, you come up with a deterrent capability that our adversaries fear and they need to fear those

capabilities. I hope to never have to employ them but they have to be ready all the time. That's the only way we can ever make sure," Hyten said.

He reiterated that the nuclear triad is essential.

"The way I describe it is 'how do you imagine a world without nuclear weapons?' A lot of people will say the world will be better off without nuclear weapons, but I know what that world looks like because it's in the history books. It's World War II," he said.

He said between 1939 and 1945, the world killed somewhere between 60 million and 80 million people in World War II. "That's 33,000 people a day being killed in war," he said. He said as bad as the Vietnam War was "and it was bad and the U.S. lost 58,000 heroes of the country, 58,000 is two days in World War II."

He said the three elements of the triad and their nuclear capabilities have kept that large-scale conflict down off the planet. "And I want it to stay that way," he said.

Hyten said last week's successful missile defense test with an intercontinental ballistic missile was to make sure it works against the North Korean threat should North Korea launch a weapon against the United States.

"That's why that test was so important to show that we have the ability if we're threatened that we'll defend ourselves. We'll respond quickly and effectively," he said. He said that military members stationed in Alaska with the missile defense system in Alaska are on alert and ready to respond.

Replacing the UH-1N helicopters in the missile fields at Minot and other ICBM bases as well as modernizing each leg of the triad are among Hyten's high priorities.

Hyten said replacing the helicopters has been a long time in the coming.

"When I was at Space Command I actually was part of the team that was building the requirements for the replacement helicopters 10 years ago and we were doing it 10 years late then. So one of my highest priorities as commander of Strategic Command is to advocate hard with the Air Force to get replacement helicopters to the missile fields. We need them desperately," Hyten said.

The modernization of the nuclear weapons is his highest priority.

He said a plan to modernize the ICBMs and bombers is in the president's budget and Congress has supported the last two years is to modernize each leg of the triad.

The plan involves a new ICBM called the GBSD — ground-based strategic deterrent; a new bomber — the B-21; a new cruise missile — the long-range standoff weapon; and a new nuclear submarine to replace the Ohio Class submarine that will be called the Columbia, said Hyten.

"When that new submarine comes on line, the new ICBMs come on line and the new bombers come on line the thing that concerns me is they all basically are going to be delivered about the same time which means we have risk in the schedule," he said. He said the Obama administration supported the modernization and the Trump administration is supporting it.

Hyten said a nuclear posture review is under way right now that will assess the U.S.'s nuclear posture and make sure the country is ready for any nuclear threat. "I expect it will support the continued modernization of our capabilities," Hyten said.

When the new nuclear weapons are ready, he said they will go through the basing process.

"The B-52s are going to be around for a long time though so you are going to have B-52s here for a long time. They're part of the bomber force," he said. "That will be a long-term discussion where the B-21s end up but Minot's going to get the new missiles. That's for sure."

<http://www.grandforksherald.com/news/4281611-stratcom-leader-advocated-airmen-modernizing-nuclear-triad>

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The Richmond Register (Richmond, KY)

Chemical Weapons Plant Receives Supplemental Funding

By Ricki Barker

June 15, 2017

After unexpected cost overruns last year in the chemical weapons neutralization projects at both the Blue Grass Army Depot near Richmond and the Pueblo Army Depot in Colorado, both projects will receive a boost of \$127 million in supplemental funding during the current fiscal year.

Details of the allocation of funds were discussed at Thursday's meeting of the Kentucky Chemical Demilitarization Citizens Advisory Commission (CAC) and the Chemical Destruction Community Advisory Board.

According to Jeff Brubaker, the government's site project manager at the depot, BGCAPP will receive approximately two-thirds of the funds allocated to both projects which will help the project recoup momentum lost from the cost overruns. Brubaker assured the CAC and CDCAB members the funds should be allocated in a few days and discussed what areas the funding will be focused on.

The funds will be used to form a new team created to accelerate super critical water oxidation (SCWO) efforts, Brubaker explained. The team will work off punch-listed scope, perform system shakeout and perform flushing and testing. An Explosive Destruction Technology (EDT) facility construction team will complete punch-listed work and a start-up team will prepare systems for operations. While those teams tackle construction punch-lists, the electronic security systems for the EDT facility and main plant will also be accelerated to optimize the potential for an earlier EDT and main-plant start.

Brubaker added that a rocket motor sampling glove box design and fabrication will be accelerated to reduce the risk of critical-path impact while start-up teams will continue to execute from the systemization re-plan.

Paired with the supplemental funding, some lower than expected costs will allow for some scheduled overtime to focus on schedule acceleration.

Before his retirement, former Program Executive Officer (PEO) ACWA Conrad Whyne requested the additional funding for the upcoming Fiscal FY 2017 supplemental requests. DOD has already put additional funds into the FY 2018 budget request.

The belt-tightening began in late 2016 when both plants experienced \$54 million in unexpected costs.

In Richmond, the discovery of defective piping welds in the SCWO Processing building and the replacement of more than 4,000 welds also played a part in the layoff of several local subcontractors for the current fiscal year.

The unexpected costs also delayed a side project to destroy problematic mustard munitions in detonation chambers at the site, which had been planned for 2017.

Faced with the cost overruns, focus shifted in November to the main plant and getting it up and running. Under the current plan, mustard munitions will be destroyed after the main plant has neutralized GB and VX nerve agents.

According to Brubaker, the EDT facility construction has been halted and the equipment put into layup mode while BGCAPP's focus shifts to the main plant.

The systemization percentage complete has also been recalculated as a result of additional budget incorporation into the revised schedule baseline. The adjusted systemization completion is 46.5 percent. During a March meeting, Brubaker said systemization of the expansive, labyrinthine neutralization plant was about 67 percent complete.

Luckily, the change in priorities has not had an affect on the timetable for destruction of the chemical weapons, which is expected to begin in 2020 and be completed in 2023. EDT operations will begin after the main plant operations in 2023.

Craig Williams, co-chair of CDCAB, thanked the work of legislators and others involved in securing the supplemental funding.

The first-of-its kind \$1.5 billion-dollar plant will need the cooperation and support of everyone to succeed in demilitarizing all remaining chemical weapons by the end of 2023, he said.

Ron Hink, project manager for Bechtel Parsons Blue Grass, the contractor for building and operating the plant, said the project's employee lost-time injury rate continues to be 78 percent lower than the industry average.

Hink said his company continues to maintain a strong focus on safety and a goal of zero-accidents during the systemization phase. BGCAPP's recordable incident rate for the last 12 months as of April 2017 was .52, Hink said.

This focus will remain, Hink said, as summer temperatures continue to climb and the company begins its "101 Days of Summer" heat stress program in order to prevent heat-related illnesses and dehydration of workers.

Brubaker said the BGCAPP employment stands at 810, with local hires making up 27 percent of the current workforce.

In an update on the defective weld replacements, Hink joked about the constant struggle the welds have been for the project.

"Hopefully, this will be the last time you see this slide," Hink told the members of CAC and CDCAB. "Approximately 22 welds remain to be completed and not have schedule impact."

The room applauded Hink's words regarding the \$15 million in repairs that had to be done.

Hink said progress continued to be made in trying to recoup the losses from the defective welds, but no final decision has been made.

Eddie Whitworth, deputy site project manager, updated members about the decision surrounding the need to take an additional GB sample.

According to Whitworth, the need to take an additional GB sample arose due to BGCAPP laboratory access to GB hydrolystate that was manufactured using high-purity distilled GB agent.

"The sample they had access too had basically been through a filter and purified," Whitworth explained. "The sample does not contain the properties found in true munitions grade agent like the lab will be analyzing."

Whitworth explained that in order to produce a sample that would be more appropriate for the lab to base its tests on, two liters of munitions grade GB would be taken from the BGCA stockpile after ACWA requested authorization from U.S. Army Chemical Material Activity.

A team comprised of representatives from ACWA, BGAD, BGCA and Edgewood Chemical Biological Center (ECBC) worked out a plan to safely extract the samples and transport them to the ECBC facility in Edgewood, Maryland, and to the Batelle Hazardous Materials Research Center in Columbus, Ohio, where it will be used to manufacture GB agents to be used in developing more accurate testing in the BGCAPP's lab.

Sampling operation is scheduled to begin in May 2018, Whitworth said.

Williams said he was pleased to see the team come up with a "healthy way forward" to the problem.

"I'm very happy with the decision," Williams said. "I think many of us were concerned about the necessity to tamper with more of the rockets and how that could be done safely. I'm glad to see this decision with the safety of the workers a priority in particular."

http://www.richmondregister.com/news/chemical-weapons-plant-receives-supplemental-funding/article_6ea27c0a-516a-11e7-a5d2-e3174598b54e.html

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The Examiner (Mount Kisco, NY)

Grant Enables New York Medical College to Combat Bioterrorism

By Neal Rentz

June 9, 2017

State Sen. Terrence Murphy (R-Yorktown) announced that a \$500,000 state grant will help New York Medical College in Valhalla become the first Center of Excellence in Precision Responses to Bioterrorism and Disasters in the Hudson Valley.

The grant will allow the college to expand its research on preparedness planning, training and response strategies for communitywide emergencies, including biological and chemical threats.

Murphy said the Center of Excellence is needed to deal with emergencies and disasters "especially being so close to New York City."

"There's a pseudo center that's already there," said Murphy, who was joined by an assortment of other officials Monday morning at the college days after the latest round of terrorist attacks in England. "This is going to upgrade it."

The funding will provide for additional training for police officers that are desperately needed, he said. Some of the training is for triage situations that emergency responders could encounter during an emergency.

"They go out on the line every single day to protect us," Murphy said, "We have to give them the ability to make sure that they know what they're doing."

The center will combine the medical college's expertise in disaster medicine and medical countermeasures with individualized precision medical strategies against threats to protect the

public from potentially catastrophic bioterrorism and man-made disasters. Researchers and physicians will provide expertise and leadership to prevent, diagnose and treat public health threats specific to biological and chemical terrorism and public health emergencies.

Dr. Edward Halperin, chancellor and chief executive officer of the college, said the grant is crucial for his institution's work.

"This Center of Excellence in Precision Responses to Bioterrorism and Disasters allows us to expand our research on preparedness planning, training and response strategies for communitywide emergencies, and help protect us all against biological and chemical threats," Halperin said.

The grant for the college will help the county to be prepared and vigilant should the need ever arise, said County Executive Rob Astorino.

"We appreciate what law enforcement does every single day and we certainly appreciate what New York Medical College is doing to help prevent some bioterrorist act," he said.

Assemblyman Thomas Abinanti (D-Pleasantville) thanked New York Medical College "for having the vision and the perseverance to develop this whole program."

"Government can be a partner," Abinanti said. "Unfortunately, every day we're being reminded that there are people out there who want to destroy our way of life."

Although New York State has 10 similar Centers of Excellence, this is the first one between Long Island and Albany. There are three facilities in Rochester, two each in Buffalo and Long Island and one each in Syracuse, Albany and Binghamton.

<http://www.theexaminernews.com/grant-enables-new-york-medical-college-to-combat-bioterrorism/>

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Pointer View (West Point, NY)

Eighth Army Strengthens Alliance, Readiness With South Korean Partners

By David Vergun

June 9, 2017

The Eighth Army is prepared for combat operations at any time, according to its commanding general, Lt. Gen. Thomas S. Vandal. Stationed in the Asia-Pacific region, the Eighth Army is especially ready to assist its partner, the Republic of Korea (ROK), in any combined endeavor.

Vandal, who also serves as the chief of staff for ROK-US Combined Forces Command, offered these reassurances at the "Land Forces in the Pacific: Advancing Joint and Multi-National Integration" symposium, May 24, which was sponsored by the Association of the United States Army Institute of Land Warfare.

Combined Commands

The ROK-US team is much more than just a combined training effort, Vandal continued. Both armies are integrating members at the headquarters level in order to increase cooperation and compatibility.

In fact, the Eighth Army's major subordinate command consists of the U.S. Army's only major combined fighting force, the 2nd Infantry Division/ROK-US Combined Division, or RUCD, he said.

Vandal recalled that he was part of the planning effort for the combined force in his previous assignment, when he was the commander of the 2nd Infantry Division.

The combined division was activated in 2015, and Vandal spoke of the positive impact it has had on joint operations. “Today, hand-picked, ROK officers, the best-of-the-best, are an integral part of the staff,” he said. “Now, we’re adding ROK staff non-commissioned officers as well.”

The combined division has also built a close training relationship with the 8th ROK Infantry Division, since they two units would fight alongside each other should the “O plan”—wartime operations plan—ever be executed.

The two armies are also pursuing other efforts to integrate their commands.

“Eighth Army is going to become a combined ground component command that will be established in 2018,” Vandal said, noting that he will then become the deputy ground component commander, working for a ROK four-star general.

While these integration efforts involve the headquarters staff, there is also an integration effort underway involving the Weapons of Mass Destruction Elimination Task Force, he said.

Describing how the WMD task force will work, Vandal described that as rotational brigade combat teams flow into theater, they will be operationally controlled by either the RUCD or by the 17th ROK Infantry. Elements from those brigades would then form the task force, which will be integrated down to the battalion level and below, “providing the synergy of the best of both nations’ armies.”

The U.S. will provide both technology elements and maneuver forces to the task force, while the ROK will primarily contribute maneuver forces, “particularly light infantry that are so beneficial to conducting these mission sets for WMD elimination,” he said.

Large-Scale Exercises

In addition to task force contributions, the U.S. Army also conducts frequent exercises to maintain readiness. “I would say our exercise (operations tempo) is the highest in the Army,” Vandal said, “and the reason I say that is because we must be ready to fight tonight.”

He noted two of the large exercises: Key Resolve, held each March, and Ulchi Freedom Guardian, or UFG, held each August.

“They’re probably the largest exercises in the U.S. Army,” he said.

The UFG involves some 400,000 ROK government personnel all the way up to the cabinet level, plus 40,000 military participants, he said.

“It’s a whole-of-government approach to their national security and they are all in,” Vandal said.

Besides those two exercises, he added that there are numerous smaller ones.

In addition to the Eighth Army, higher commands such as the United Nations Command are working to expand U.N. participation in exercises. Gen. Vincent K. Brooks is the commander of United Nations Command, as well as of Combined Force Command and U.S. Forces Korea.

Of the 17 nations that contributed forces and material in the Korean War, “all participate and are committed to the UN Command,” Brooks remarked. “So we are looking at how to expand their participation in future exercises.”

For example, the Canadian forces provided a division during last year’s UFG exercise for the first time. If a conflict emerged, that Canadian division would be part of the I Corps, but under the operational control of the 3rd ROK Army.

Vandal pointed to an increase in countries' participation in these exercises over the years, and he is optimistic that such involvement will increase in the future.

Multi-domain Battle

In addition to exercises, the topic of multi-domain battle, or MDB, took up a large portion of the LANPAC symposium.

The MDB concept encourages units to engage the enemy in all domains—air, sea, land, cyber, space—in the context of a joint.

"We are doing a lot of that already," Vandal said of MDB, providing three examples.

First, during this month's Warrior Strike, a counter-WMD exercise, the U.S. Army flew a WMD Elimination Task Force onto a ROK amphibious carrier. From there, the unit did an air assault on a suspected WMD underground facility.

The exercise involved naval, ground and air components of the U.S. and ROK forces. "You can well imagine the complexity of doing something like that," Vandal said, adding that the exercise was realistic and would be a top priority should a real situation unfold.

A second recent exercise involved integrated Apache helicopters from the 2nd Combat Aviation Brigade, along with the U.S. naval component from 7th Fleet, U.S. Special Forces, and a ROK air component. That too was complex, Vandal remarked.

Third, the ROK and U.S. Army, Air Force, Navy and Marine Corps came together to test combined joint logistics over-the-shore, involving the use of rail, inland waterways and air terminal supply point capabilities. That exercise focused on sustaining the combined force and involved bringing in a floating dock and establishing an expeditionary port so that U.S. Army and Marine materiel could be transported to the proper unit.

"The piece that needs to be worked harder is the cyber and the space integration to make all five domains integrated. That's the way ahead," Vandal added.

Transformation through Consolidation

The integration efforts and exercises are part of a large-scale transformation of the forces in the area. "Transformation of Eighth Army and arguably the transformation for the whole peninsula for U.S. Forces Korea is the most dramatic since 1953," Vandal said.

As U.S. and ROK units are combining, there is also a huge base consolidation occurring at U.S. Army Garrison Humphreys.

This consolidation effort isn't exactly recent, he said. It has been going on for about 10 years and involves moving Soldiers, Army civilians, contractors and families from some 120 installations mostly north of the Han River—which runs through the capital of Seoul—and moving them into Camp Humphreys farther south.

Eighth Army and U.S. Forces Korea in Yongsan are part of that move, which costs \$10.7 billion. Ninety-two percent of the moving costs are being paid by the ROK government, Vandal reported.

"We've essentially tripled the size of Camp Humphreys," he said. By 2020, the transfers should be complete with about 42,000 personnel on post.

Eighth Army is scheduled to be in place in Camp Humphreys by mid-July, with U.S. Forces Korea and RUCD on location by January 2018.

Vandal referred to Camp Humphreys as "the crown jewel of overseas assignments" for Soldiers and families, meaning that the base offers good quality of life and excellent family housing, along with

facilities like a post exchange and commissary. He added that it's "absolutely the best overseas installation I've seen and probably the largest."

An added benefit of the move is increased forced protection, he said. With everyone in one place, it will be more efficient to evacuate family members should the need occur.

Lastly, Vandal said that the expansion of Camp Humphreys is "a commitment to the alliance"—a fiscal commitment by the South Koreans and a military commitment by the U.S. to provide stability and security not just for Korea, but for the entire region.

Nurturing the Alliance

For Soldiers of the Eighth Army, "the center of gravity in Korea is the alliance and each one of us has a responsibility, from private to general officer, to help nurture that alliance," Vandal emphasized.

"We do it through combined training. We do it through relationship building. We do it through community interaction. So collectively, it helps us build a strong, healthy relationship," he continued.

That relationship is encapsulated in the Korean phrase that the U.S. Soldiers have adopted: "Kapshi Kapshida," he said, which means "Let's Go Together."

Lastly, Vandal spoke directly to his Soldiers: "You serve here with a sense of purpose. You see a threat," he said. "You look at it every single day. You are focused on that threat and because of that sense of purpose, you are very much focused on being ready to fight tonight, from the youngest private to every general officer."

<http://www.pointerview.com/2017/06/08/eighth-army-strengthens-alliance-readiness-with-south-korean-partners/>

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American Chemical Society (Washington, DC)

New Fabric Coating Could Thwart Chemical Weapons, Save Lives

By David Vergun

June 7, 2017

Chemical weapons are nightmarish. In a millisecond, they can kill hundreds, if not thousands. But, in a study published in the ACS journal Chemistry of Materials, scientists report that they have developed a way to adhere a lightweight coating onto fabrics that is capable of neutralizing a subclass of these toxins — those that are delivered through the skin. The life-saving technique could eventually be used to protect soldiers and emergency responders.

Since their first use in World War I, dozens of chemical weapons with devastating potential have been developed. For example, just a pinprick-sized droplet of the nerve gas sarin on the skin is lethal. Recently, scientists have begun exploring the use of zirconium-based metal-organic framework (MOF) powders to degrade and destroy these harmful compounds. MOFs are miniscule, porous structures that have large surface areas that allow them to absorb vast amounts of gases and other substances. The zirconium within them helps neutralize toxic materials. But making MOFs can be tedious, requiring high temperatures and long reaction times. Plus, most MOF powders are unstable and incorporating them onto clothing has proven challenging. Dennis Lee, Gregory N. Parsons and colleagues wanted to see if they could "grow" MOFs onto fabric at room temperature, potentially creating a lightweight shield that could be used on uniforms and protective clothing.

Building on previous work, the researchers exposed polypropylene, a nonwoven fabric commonly used in reusable shopping bags and some clothing, to a mixture consisting of a zirconium-based MOF, a solvent and two binding agents. To ensure that the coating spread evenly across the cloth, they treated the fabrics with thin layers of aluminum, titanium or zinc oxide. They tested this combination with dimethyl 4-nitrophenyl phosphate (DMNP), a relatively harmless molecule that has similar reactivity as sarin, soman and other nerve agents. They found that the MOF-treated cloths deactivated the DMNP in less than 5 minutes, suggesting this process is a viable means to create improved protective clothing.

The authors acknowledge funding from the U.S. Army Edgewood Chemical Biological Center and the Joint Science and Technology Office for Chemical and Biological Defense.

<https://www.acs.org/content/acs/en/pressroom/presspacs/2017/acs-presspac-june-7-2017/new-fabric-coating-could-thwart-chemical-weapons-save-lives.html>

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Bulletin of the Atomic Scientists (Chicago, IL)

The Nuclear Weapons Ban and the NPT

By Ray Acheson

June 15, 2017

Since 1970, the Nuclear Non-Proliferation Treaty (NPT) has been the sole international agreement committing nuclear-armed states to disarmament. Every five years, the 189 states party meet in a review conference to assess how things are going. Before each review conference, they hold several preparatory meetings, the most recent of which took place in Vienna in May.

That timing is significant, because it was the first NPT gathering to occur since most of the world's nations—some of them fed up with the slow pace of disarmament—began trying to negotiate the world's first-ever treaty to ban nuclear weapons altogether. Ban negotiations began in March and resumed on June 15. The timing of the May preparatory meeting should have pressured the nuclear-armed states and their supporters to get more serious about advancing disarmament. Instead, these states continued to criticize efforts to ban nuclear weapons, while offering no new commitments or visions for making progress in other ways.

The May Preparatory Committee meeting (or “PrepCom”) clearly showed that NPT members who want faster, more concrete action on disarmament face challenges. With the nuclear-armed states modernizing their arsenals, and little traction on any of the previously agreed commitments and obligations related to disarmament, it's unclear how the treaty's membership can advance on key issues by 2020, the date of the next review conference.

PrepComs don't produce binding documents, but participants do hope the chairperson summaries will reflect their goals. These summaries can provide useful guideposts when it comes time to negotiate the outcome documents of the review conferences themselves, which are politically binding and require implementation. This time, the summary produced by the chairman, Ambassador Henk Cor van der Kwast of the Netherlands, drew praise but also criticism. In particular, most supporters of the ban treaty were disappointed. The New Agenda Coalition (a group of six pro-ban countries) expressed concern that the ban treaty only earned two sentences in the 49th paragraph. Given that 132 states are participating in ban negotiations, and the broad support it received during the PrepCom deliberations, this reference struck many as insufficient.

Committee conflict. The vast majority of states party to the NPT support the nuclear weapons ban. In fact, during PrepCom discussions, they emphasized the ban treaty's complementarity to the NPT. The ban negotiations and the NPT share goals, such as enhancing security and preventing a humanitarian and environmental catastrophe. The International Committee of the Red Cross, which supports the NPT, also urged all states to participate in the ban negotiations.

At the same time, though, nuclear-armed states participating in the May PrepCom, as well as allies who see their security as dependent on a nuclear "umbrella," used the meeting to reiterate their opposition to the ban treaty. Russia expressed concern about what it called a "radicalization of approaches to nuclear disarmament," while the British delegation argued that the ban being negotiated will not "bring us closer to the goal of a world without nuclear weapons." France said that "the prohibition approach could divide the disarmament community" and generate more frustration than progress. The United States said a ban treaty may make the world more dangerous and unstable and act as a "distraction" from the NPT review process. China was slightly more tempered, saying that its position on nuclear disarmament is in line with the purposes of the prohibition treaty, but that it prefers a "gradual approach." (So far, China has not participated in ban negotiations.)

The very fact, though, that so many pro-ban countries were present for PrepCom and spoke in support of the NPT suggests that the nuclear-armed nations simply have it wrong. The ban treaty negotiations have clearly not destroyed the NPT or its review process. Given that this was the predominant concern of the nuclear-armed states and their supporters in the lead-up to the May meeting, it seems fair to assume that their other predictions and anxieties about the prohibition treaty may be equally unfounded.

New methods, old goals. The problem is not really, of course, that the ban treaty risks undermining the NPT. It does risk undermining the rationale the nuclear-armed states have relied on to maintain and expand their arsenals despite treaty commitments. The cornerstone fallacy of the NPT is that, as the Russian delegation asserted during the PrepCom (link in Russian), the presence of nuclear arsenals in five countries is completely legitimate.

This myth of legitimacy is undermined by the five "official" nuclear-armed states' strong objections to North Korea's nuclear program, and even more by their own failure to implement their legal obligations and political commitments. If the nuclear arsenal reductions they committed to decades ago had been fulfilled in good faith, "we would be moving, even incrementally, towards the complete elimination of nuclear weapons," as the Brazilian PrepCom delegation pointed out. Instead, while claiming to espouse a "building blocks" or "progressive" approach to disarmament, the nuclear-armed states have failed to take concrete action, and in fact marched in the opposite direction by upgrading and modernizing their arsenals. It is actions like these—not the proposed ban treaty—that have undermined the NPT.

The pattern of making commitments and failing to implement them could only persist for so long before other countries started moving forward on their own. Those now negotiating a ban are carrying on with the task of developing a legal framework to achieve a world free of nuclear weapons. These states participated actively in the NPT PrepCom in an effort to find common ground with those that have chosen to boycott the negotiations. They also rightly see the development of the ban treaty as a way to fulfill the NPT, Article VI of which obliges them to negotiate effective measures for nuclear disarmament in good faith.

<http://thebulletin.org/nuclear-weapons-ban-and-npt>

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Jalopnik (New York, NY)

These Missiles Could Be The Next Nuclear Arms Race

By Terrell Starr

June 14, 2017

They move at more than five times the speed of sound and can maneuver in unpredictable patterns previously unthinkable at high velocities. They're nearly impossible to stop. And they can carry thermonuclear payloads. In the relentless global arms race, maneuverable hypersonic weapons look like the next step.

If either the U.S., China and Russia are able to perfect the technology on their maneuverable hypersonic weapons programs in the next 15 or 20 years, the world could potentially face a devastating nuclear imbalance.

In August of 2016, Lockheed Martin was awarded a \$147 million contract to build a weapon capable of reaching speeds of Mach 20; at such a speed, it could travel from New York City to Los Angeles in 12 minutes. Russia reportedly conducted a successful test of its Zircon hypersonic cruise missile that is capable of traveling between 3,800 mph and 4,600 mph, or Mach 5 or 6 and has a known range of roughly 250 to 300 miles.

Leadership at the highest levels of government admitted hypersonic weapons pose a serious threat to America's defense capabilities, per Defense News:

"Hyper-glide vehicle research and development are also challenging our planning calculus," STRATCOM commander Adm. Cecil Haney said at the symposium's first day. "The ability to find, fix and track and hold ... these types of capabilities are becoming increasingly more difficult. Hyper-glide vehicle technology can complicate our sensing and our defensive approaches."

While it's one of those things that seems far-off, the world's leading nuclear powers are working tirelessly to perfect the technology. Last year, China tested for the seventh time a new hypersonic glide vehicle last year. Russia tested its own just days before. America tested its version back in 2014, but it failed soon after take off.

Yet nuclear states are actively pursuing them, putting an already nuke-nervous world possibly further at risk.

What Is A Maneuverable Hypersonic Weapon?

Let's get the language down first. You'll see a lot of publications describe hypersonic missiles without qualifying it with the term "maneuverable" or "guided." But that's actually what makes them such a game changer, Dr. Phillip Coyle, the Senior Science Fellow is Senior Science Fellow at the Center for Arms Control and Non-Proliferation, told me.

"The difference is that ICBMs are ballistic with a relatively predictable trajectory, while maneuvering hypersonic missiles, such as boost-glide vehicles, are more unpredictable and not simply ballistic," he added.

Simply put: A ballistic missile goes up and down. Maneuverable weapons are much less predictable and straightforward.

Hypersonic weapons fall into three categories, according to James Action, Co-director of the Nuclear Policy Program at the Carnegie Endowment for International Peace.

First, there is the hypersonic ballistic missile, such as the Trident D5 that is nuclear-armed and launched from submarines. Once the motor pops off, the missile is unguided and travel high above

the earth, around 1,500 kilometers or more. When people discuss hypersonic ballistic missiles, they generally do not include ballistic missiles because they do not have the ability to maneuver. But flaps could be built on the reentry vehicle, thus giving it the ability to maneuver after it reenters the atmosphere. This is also referred to as a terminally-guided ballistic missile.

Another type of hypersonic technology is the boost glide vehicle, which is launched by a large rocket similar to a ballistic missile. The United States has used retired ballistic missiles to launch boost glide vehicles. The very beginning of the flight looks similar to a ballistic launch. However, with a boost glide vehicle, rather than arching high over the atmosphere, it is designed to reenter the atmosphere very quickly and glides very quickly at high speeds. An example of this is America's Advanced Hypersonic Weapon (AHW). It has a range of around 3,700 kilometers. Unlike a ballistic missile that spends most of its time in space, the glider spends most of its time in the atmosphere. Once the rocker motor detaches, they're unpowered.

The third of these weapons is the hypersonic cruise missile. Think of the cruise missile like an airplane in that it stays in the air through aerodynamic lift. They have small wings to keep them in the air. This weapon has an engine that fires throughout the flight.

An example of this is the X-51A WaveRider. After two failed tests, it managed to reach speeds of more than Mach 5, or more than 3,000 miles per hour, at an altitude of 60,000 feet in May of 2013.

The first test took place in 2010 and was hailed a success, the missile failed during testing in 2011 and 2012, according to Space.com.

As fascinating and terrifying as these weapons are, perfecting the technology is tricky. David Wright, co-director of the UCS Global Security Program, told me maneuverable hypersonic weapons cannot travel that far when compared to ballistic missiles.

Traveling thousands of miles per hour through the atmosphere, the missile gets very hot and moves slower because of atmospheric drag, as opposed to traditional ballistic missiles, which cover most of their range by flying through the vacuum of outer space.

A standard ballistic missile can easily go 10,000 to 15,000 kilometers, but, in general, the longest range many hypersonic maneuverable weapons have gone is 2000 to 3000 kilometers, Wright said.

"The problem is that if I have one that goes 500 miles and I want to make it go longer than that, it means I have to make it go much faster," he added. "But when I make it go faster, it has much higher drag in the atmosphere and it slows down quicker. You hit diminishing returns trying to make these things go farther and faster."

So Why Does The U.S. Want A Maneuverable Hypersonic Weapon?

The Pentagon has been vague about this, but Tom Collina, director of policy at the anti-nuke Ploughshares Fund, told me one argument for this type of weapon is to be able to quickly take out a terrorist cell planning an attack from long ranges without using a missile designed to carry a nuke. A Carnegie Endowment paper points to a report by the National Research Council (NRC) that connects counterterrorism missions with hypersonic long-range weapons capabilities.

Say the Pentagon found a terror target and wanted to hit it with cruise missiles, like the BGM-109 Tomahawk. The target could be warned before the missile arrived. However, it would be much harder to tip off a terror target with a long-range maneuverable hypersonic weapon.

These missiles are conceived to be conventional. But the counter argument is that if they can carry a conventional warheads, why couldn't they carry a nuclear ones?

Action said there is a way Russia, the U.S. and China could get around that concern.

"If Russia deployed both conventional gliders and nuclear gliders at the same site, we wouldn't necessarily know if something headed towards us was conventional or nuclear," he said. If, on the other hand, it deployed them at separate sites and we had a reciprocal inspection regime in which U.S. inspectors and Russian inspectors verified how gliders were armed on one another's territory, then you may be able to distinguish between a conventional or nuclear glider. It depends on how they are deployed and what arms control arrangements are in place."

Action does believe this would require a new treaty, but it could mirror New START.

"I agree it wouldn't be likely but, given the risks, I wouldn't totally preclude a specific narrow confidence-building measures focused on these systems," he added.

Are Current Missile Defense Systems Capable Of Shooting Down Maneuverable Hypersonic Weapons?

This is not a straightforward question.

We have to distinguish between area defenses and point defenses. Action told me that area defenses, like the Ground Mid-course Defense system (GMD) that is based in Alaska and California, are designed to protect wide areas. It would be challenging for a GMD to shoot down a glider or maneuverable hypersonic reentry vehicle because they travel far lower in the atmosphere than ballistic missiles do. Gliders may travel at 50 or 100 kilometers whereas ballistic missiles may max out at 1,500 kilometers.

It is very challenging to see a glider from long distances with existing U.S. sensors like radars, Action told me. You have to be able to track something very accurately before you destroy it. The higher above the earth's surface something is, the further it can be seen by a radar. As for maneuverable hypersonic weapons, a GDM would not be idea because they travel at a lower in the atmosphere.

However, Action believes the Terminal High-Altitude Area Defense (THAAD) system may be able to defend against maneuverable hypersonic weapons better than GMD. Point defenses, like THAAD and the MIM-104 Patriot system, are designed to protect small chunks of assets. Though they are designed to target ballistic missiles, they could be reworked to take out maneuverable hypersonic missiles.

"A system like THAAD has already been effective short to medium-range ballistic missiles," he said. "The speed of a glider is not a particular problem for THAAD. Secondly, gliders get incredibly hot when they are traveling through the atmosphere and that creates a very read infrared heat signature. That is something potentially THAAD can lock on to. THAAD has an infrared seeker already. Thirdly, you have this issue of countermeasures. Because ballistic missiles are in space where there is no friction, you can protect them with countermeasures, like decoy warheads. That is basically impossible to do for something that is in the atmosphere like a glider."

That said, the main unknown is their maneuverability. Action says one way to defeat an area missile defense system is by having a target that can maneuver very quickly. Theoretically, you can do that with a glider or any other hypersonic maneuverable weapons.

"In practice, however, there is very little evidence that gliders are anywhere close enough to being able to maneuver quickly enough in order to be able to defeat defenses," Action said. "In order to beat defenses, you need to be pulling tens and tens of Gs (or G-Force) and that is something I don't believe gliders are anywhere near being able to do."

A Potential Arms Race For The Future

Generally speaking, one thing all of the experts I spoke with agree on is that maneuverable hypersonic weapons are destabilizing.

According to a 2017 Congressional Research Service report, these weapons are apparently designed for conventional use—though, conceivably, they could be tipped with nuclear warheads. They are designed to trick current anti-ballistic missile systems that are created to take out targets on a ballistic trajectory, which is why they would be particularly devastating if the technology were ever perfected.

Action told me these weapons are not a concern for the immediate future, but warns they could be a problem twenty years down the line if the technology is nailed down by either side. As they are currently being designed, maneuverable hypersonic weapons do not go far up in the air like ballistic missiles, significantly reducing reaction time.

Fears over a future arms race have some calling for a ban on researching maneuverable hypersonic technology because nuclear powers are still trying to figure out how to address the world's 15,000 nuclear warheads.

“The rationale for needing these hyper-velocity weapons is highly questionable, particularly when you get into this game of everyone trying to develop them at the same time and this potential arms race in hyper-velocity weapons and what does it mean,” Collina said. “Plus, the Russians are concerned because these things are so accurate. If you put a high yield conventional warhead on them, you can target nuclear weapons in Russia. So you begin to mess with the nuclear balance.”

<http://foxtrotalpha.jalopnik.com/maneuverable-hypersonic-weapons-could-be-the-next-arms-1795732276>

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New Eastern Europe (Krakow, Poland)

The Reykjavik Summit: When Iceland Paved the Way For World Peace

By Andri Yrkill Valsson

June 8, 2017

The fact that Iceland is holding presidency in the Council of the Baltic Sea States may seem odd to some. Iceland is not a Baltic state, so why would it get involved in regional politics? While this is not a question that will be addressed in this paper, it offers a great opportunity to look back on a moment in history when Iceland played a key role.

It was 1986, the Cold War was at its peak, and in the nuclear arms race between the United States and the Soviet Union every little spark could have had unforeseeable consequences for the world. That was the case for decades after the Second World War. However, when Ronald Reagan and Mikhail Gorbachev came to power, there emerged new hope for a change. Both openly criticised the arms race as neither had anything to gain from the tension between the East and the West. While it was clear that it would be impossible to change the balance of power in the world overnight, a small island in the north attempted to achieve just that. Iceland, geographically located midway between the two superpowers, was in the spotlight for one weekend in October 1986, when the two world leaders met there to discuss arms control – face to face in Reykjavik.

Although the meeting has been referred to as the Reykjavik Summit, it was not one. In order to limit the outside pressure on the two leaders the meeting took place in an informal, personal atmosphere.

Reagan's "Star Wars"

When Ronald Reagan was elected President of the United States in 1981 he brought some fresh air to the US-Soviet relations. He publicly criticised the nuclear stalemate and expressed his readiness to do something about it. Nevertheless, although the arms control negotiations between the United States and the Soviet Union had been underway since 1980, the Soviets left the table in 1983. As a result, the USSR's image in Western Europe suffered significantly and this forced Reagan to speak publicly about the threat Moscow posed to the world. His aim was twofold: to influence public opinion whilst simultaneously putting pressure on Moscow.

Reagan's dream was a world without nuclear weapons. However, as this was a complex goal, he decided to create a defence system which could at least stop the incoming nuclear missiles. His plan was put forward in the 1983 Strategic Defense Initiative (SDI), with the view to install a laser in space which could protect the US population from a nuclear attack. It is known as Reagan's Star Wars programme.

Moscow watched the introduction of the SDI with concern. The Soviets believed that it would have a negative effect on the balance of power in the world and that the West would gain both military and technological advantages. Reagan, however, saw the SDI as a defence tool only, to protect civilians in case of Soviet aggression. In 1985, when Mikhail Gorbachev came to power, it seemed that there was room for improvement in the relations between the two states. However, it soon became clear that the new leader's foreign policy would be different from his predecessors'.

Domestically, Gorbachev faced the enormous challenge of reforming the economic structure of the country. He realised that the ideological warfare between East and West would be fought on the economic front. The Soviet Union's primary military investments had been in land-based missiles and Gorbachev realised that Moscow could not compete with the US's more advanced equipment. This technological gap could jeopardise Gorbachev's goals for economic reform, as the Soviets would have to invest a great deal in defensive measures in order to keep the balance of power between the two blocs. He could not afford that and thought that nuclear disarmament was a key area which needed attention.

At the time, the leaders of the most powerful states in the world shared the same concerns about nuclear weapons and expressed their willingness to address the issue. They first met in person in Geneva, Switzerland, at a summit held in November 1985. There, they began to develop the respect for one another which paved the way for further negotiations.

History made in Reykjavik

Gorbachev proposed a meeting where the two leaders could discuss arms control in more detail. It would be less formal than the Geneva Summit in order to limit the outside pressure that would normally accompany such gatherings. Another important issue was the location: the meeting should not be hosted in any major city or in either of the negotiating states.

Reykjavik was believed to be the most neutral spot for further negotiations, geographically located in between the two superpowers.

The meeting was announced on the September 30th 1986 and was to take place less than two weeks later. It was held in Höfði, a historical house in northern Reykjavik, and the excitement of the general public in the country was clear. It is not every day that a small island in the north is in the

centre of the world's attention. In fact, nobody predicted at that point just how important this meeting would be. Not even the leaders themselves.

After the Geneva Summit, where the aim was to agree on bilateral nuclear reductions, the US and Soviet negotiators continued their attempts to make progress in the area. However, the negotiations seemed to have hit a dead end. Therefore, even though both Gorbachev and Reagan hoped that their Reykjavik meeting would get things back on track, the expectations on both sides were moderate.

Both leaders came to Iceland with their own set of goals. Gorbachev hoped to negotiate a major arms deal and, if that was not possible, he at least wanted to highlight that it was Reagan's SDI that stood in the way of the agreement. On his part, Reagan hoped to discuss US-Soviet bilateral relations, human rights and regional conflicts in addition to arms control, as he thought that the nuclear deal was not separable from the other issues.

However, the Reykjavik Summit turned out to be all about arms control. While negotiating the deal was not an easy task, there were signs of progress. The leaders seriously discussed the possibility of disposing of all ballistic missiles and nuclear weapons. But, just when everything seemed to be heading for an historical solution, the discussion reached a turning point. And it is clear that Gorbachev left the negotiations in a much stronger position than his Washington counterpart.

Gorbachev offered a number of concessions. He suggested the elimination of all medium-range nuclear weapons in Europe, a treaty to ban all nuclear testing, and that both countries would agree to cut down their stocks of long-range nuclear missiles by half over the following ten years. Clearly, Reagan realised that the deal would make him be remembered as the one who ended the nuclear arms race. However, there was a catch in the Gorbachev's offer – the SDI. Reagan's Star Wars dream was the only thing standing in the way of an historical deal.

The Soviet Union wanted the US to freeze the development and testing of the new technology, never letting it leave the laboratory. When things seemed to be going in the right direction, Gorbachev stated that all his proposals come as a package deal in exchange for halting the SDI. However, whilst the system was not functional yet, it was still at an early stage of research and many were sceptical about its viability, Reagan was not willing to give it up. He assured Gorbachev that the system was not intended to create any military advantage over the Soviet Union, but to ensure the safety of US citizens. It is claimed that he even offered to share this technology with Moscow, but Gorbachev was strong-minded. Either it would be a package deal – or no deal. For Reagan that was a non-starter.

Was Reykjavik a failure?

The leaders left Iceland without giving a common statement and the media was quick to conclude that the meeting had been a failure. Reagan was noticeably more disappointed. His refusal to accept the package deal suggested that he was at fault for the lack of outcome. The tables had turned, as only a few years earlier Reagan had accused the Soviet Union of being the only one standing in the way of arms control. It looked as he had an obsession with the SDI, a system which might not even work and which blocked any progress in nuclear disarmament. At the same time Reagan's decision a real propaganda victory for Gorbachev.

However, was Reykjavik really a failure? As the dust has settled and scholars have examined the results of the summit more closely, many have come to the conclusion that the meeting was in fact a turning point in the nuclear arms race. Reagan himself confirmed the view when asked about it years later. His Secretary of State at the time, George Shultz, went a step further and claimed the meeting had been no less than sensational.

Even though no deal was signed in Iceland, the discussion paved the way for future diplomatic negotiations. For instance, progress was made regarding practical issues as regular meetings of

working groups, consisting of high-level diplomats and military representatives, were set up. Moreover, the leaders had come to an agreement on the definitional difference between weapons and nuclear weapons and deemed the use of the latter unacceptable by any state.

But the most significant change came only a year later, in December 1987, when the leaders met again at the Washington Summit. The Intermediate Range Nuclear Forces Treaty (INF) – a deal that had been in progress for several years, was signed by the US and Soviet Union. The treaty eliminated an entire class of nuclear weapons for the first time which would not have been possible without the discussion in Reykjavik.

This more relaxed approach seemed to have worked and the informal face to face discussion behind closed doors in Höfði was a success. The weekend also made Icelandic media history, as the first ever event to be covered live on national television. The journalists on the scene had a difficult job to do, trying to keep the broadcast interesting while the cameras was focused on the door at Höfði the whole time.

The importance of the meeting laying the groundwork for other treaties in the following years is rarely mentioned. But both leaders have referred to the Reykjavik Summit as a turning point for nuclear arms control, especially because of how personal the discussion between them was. To this day, the flags of the United States and the Soviet Union are displayed in Höfði, in memory of this historical meeting. It surely paved the way for more peaceful talks during the fragile times of the Cold War – even though it took some time for the world to appreciate it.

While Iceland's presidency in the Council of the Baltic Sea States might still seem odd to some, it may be a good reminder to the Baltic states that smaller countries can still play a big role.

<http://www.neweasterneurope.eu/articles-and-commentary/2378-the-reykjavik-summit-when-iceland-paved-the-way-for-world-peace>

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Arms Control Wonk (Washington, DC)

Sechser & Fuhrmann: Deterrence Yes; Coercion No.

By Michael Krepon

June 13, 2017

How do backers defend their support for spending more a trillion dollars over the next three decades to recapitalize all three legs (and shorter appendages) of the U.S. nuclear triad? By invoking the awesome power of nuclear weapons and the uses they presumably serve. Foremost among them is deterrence of a nuclear attack. As long as nuclear weapons exist and are held by competitors and adversaries, investment on these grounds is entirely justifiable, since the costs of being attacked by nuclear weapons could easily dwarf the costs of recapitalization.

But how much of an investment is needed to deter? Which expenditures make the most sense, and which are best avoided? Debates over “how much is enough” have theological overtones. Rational analysis does not support the contention that a shortfall in spending of, say, ten percent, will lead to the failure of deterrence. There will, almost certainly, be a shortfall of ten percent if not far more over the next three decades. But no expense is too great if one believes in the Bomb's supreme powers—not simply deterrence, but the value of nuclear war-fighting capabilities if deterrence fails, and the leverage that the Bomb can apply to those less well endowed.

I will grant that there is a competing theology of disarmament, one that finds international politics to be an unnecessary impediment. The economic costs of believing in the Bomb are, however, far greater than the costs of believing in nuclear disarmament. One set of costs is quite real; the other is conjectural, and very hard to envision for those who have been entrusted with the Bomb's stewardship and for those with powers of the purse.

The most powerful weapon created by mankind mocks theoretical constructs such as strategic and crisis stability. Deities are above such calculations. The same Ivory Towers that conceived of these constructs also conceived of dangers and opportunities from falling behind or forging ahead in a nuclear competition. Nothing about the Bomb suggests stasis. Everything about the Bomb exudes omnipresent danger and demands material sustenance.

Down-sizing nuclear arsenals is possible if we down size our expectations of the Bomb. Todd Sechser and Matt Fuhrmann have done their part, applying the tools of Political Science to the question of whether the Bomb has helped shape outcomes in confrontations between nuclear-armed states and contests between nuclear "haves" and non-nuclear weapon states. Their book, *Nuclear Weapons and Coercive Diplomacy*, accepts Professor Alex George's challenge to his fellow academics to tackle big, important issues that have profound consequences for public policy, and to do so in understandable ways. Todd's and Matt's focus is the political utility of nuclear weapons. They help bridge the gap between academia and public policy for those willing to apply rational analysis to nuclear excess.

Here are some of their key findings from 19 crises and confrontations since the Bomb's unveiling:

Nuclear weapons have helped to deter nuclear exchanges and large-scale conventional wars—but not lesser contingencies.

The record of these lesser contingencies strongly suggests that nuclear weapons have little coercive utility in today's world, and that the contrary view is badly misguided.

What matters most in a confrontation between nuclear-armed states or between the "haves" and "have nots" are the coercer's ability to impose its will militarily, the stakes in dispute, and the costs of military conflict.

Most nuclear threats lack credibility because of the limited military utility of nuclear weapons relative to conventional firepower, the high costs of implementing coercive nuclear threats, and the relatively low stakes for the coercer relative to the defender.

Nuclear blackmail can still be credible, but only when a state lacks conventional military capabilities, if it faces extreme provocation, or finds itself in a desperate situation with its back to the wall. These conditions can also lend credibility to threats of nuclear weapons use for deterrence purposes.

Nuclear weapons support primarily defensive rather than offensive objectives.

The notion that more nuclear firepower equals greater influence is intuitive, but is not supported by real-world events. In a crunch, nuclear superiority is trumped by more prosaic factors.

Todd and Matt advance and apply a "nuclear skepticism theory." Their analysis badly undermines the coercionist school. All of the classic cases where coercion seemed to have utility are weakened the deeper one delves into particulars. Moreover, all of the cases that lend themselves best to coercionist assumptions are over four decades old, the last being the Nixon Administration's nuclear alert during the 1973 Middle East crisis. At least in this case, the Nixon Administration's signaling was clear-cut; in most cases, signaling is misread or ambiguous, as was most certainly the case during the Nixon Administration's attempts to shorten the Vietnam War.

The record to date of 21st-Century attempts at nuclear coercion in the Asia-Pacific theater is no better than in the 1950s. On the Korean Peninsula, overflights of U.S. bombers, the presence of aircraft carrier strike groups, and port calls by nuclear-powered submarines might partly reassure anxious allies, but they are unlikely to affect Kim Jong Un's calculus of decision. His deterrence signals—underground nuclear explosions and missile flight-tests—are just as, if not more powerful.

In South Asia, which presents the most cases of nuclear-tinged crises since 1998, the track record to date strongly favors the authors' skepticism. While nuclear dangers have increased as capabilities have grown, these capabilities have not altered the status quo. Pakistan, which has sought to change it through adventurism or proxies, has received international censure, not disputed territory. In any event, the presumed value of nuclear advantage is thoroughly muddled, as opposing capabilities are shrouded in secrecy and unclear to the contestants. Was the nuclear status of forces instrumental in determining the outcome of the Kargil crisis? No one knows. Pakistan might have possessed more of an operational capability than India at that time, but what mattered most was that Pakistan faced global condemnation for this gambit. Nuclear signaling during these crises has been as much to prompt diplomatic intervention by third parties as to reinforce deterrence. Pakistan's embrace of "tactical" nuclear weapons follows this pattern of nuclear signaling. India, too, is engaged in signaling by embracing the "Cold Start" doctrine, but status quo powers don't do coercion very well.

Nuclear deterrence has worked in the most taxing cases—so far. The cost of this insurance policy can be greatly reduced if we are able to recognize this policy's exclusions. For this, we have Todd and Matt to thank. For those wanting to hear their case, as well as the commentary provided by Toby Dalton and Mira Rapp-Hooper, you can go here for a recording of Stimson's book luncheon.

This historical record isn't immutable. All bets are off if another mushroom cloud appears on a battlefield. If this long-dreaded event occurs, it will be due to the failure of diplomacy and abetted by the accumulation of nuclear war-fighting capabilities. To state the obvious: The costs of diplomacy are a mere pittance compared to the costs of nuclear deterrence.

<http://www.armscontrolwonk.com/archive/1203367/sechser-coercion-no/>

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The Diplomat (Tokyo, Japan)

North Korea Introduces a New Coastal Defense Cruise Missile Launcher: First Takeaways

By Ankit Panda

June 9, 2017

On Friday, North Korea's state-run Korean Central News Agency (KCNA) announced that it had tested a "new cruise rocket" system on Thursday morning. The country's supreme leader, Kim Jong-un, presided over the launch, which took place from near Wonsan and featured multiple launches.

Released pictures of the event through North Korean state media confirm that the system tested on Thursday was first seen at the April 15 parade in Pyongyang, which commemorated North Korean founder Kim Il-sung's 105th birth anniversary. Between the parade and Thursday's launch, North Korea appears to have changed the system's camouflage scheme from a naval-themed blue to regular forest camouflage.

The system is a new integrated coastal defense cruise missile (CDCM) launcher with four canisters for what may be an iterative improvement on the Kumsong-3, North Korea's anti-ship cruise missile system that was first seen publicly in 2014 and is a variant of Russia's Zvezda Kh-35 anti-ship cruise missile.

The KCNA statement touted that the new system, like the Pukkuksong-2 medium-range ballistic missile launcher first seen in February and the launcher for the new “ultra-precision” Scud short-range ballistic missile shown in late-May, uses a tracked transporter-erector-launcher. North Korea has made a point of showing off these types of launchers this year, all of which have been developed indigenously and increase the survivability of its various missile systems.

Notably, the tracked treads allow the launchers to shoot from unpaved roads or even entirely off-road, increasing the available space from which North Korea can operate these systems. (North Korea has just 724 km of paved roads compared to 24,830 km of unpaved roads across its entire territory.) Thursday’s launch, for the second time ever, features an off-road launch. (The first such launch was its second flight test of the Pukkuksong-2 in May.)

With the newly tested CDCM, this will be particularly important. In wartime, North Korea will be able to deploy this system as a “shoot-and-scoot” platform on its coasts, making it less likely that the launchers would be easily destroyed in either preemptive or retaliatory strikes. The advantage may be marginal against the superior capabilities of South Korea and the United States, but it represents a significant benefit over a similar point defense system or even a non-integrated mobile launcher.

Imagery of Thursday’s test released by Rodong Sinmun shows multiple CDCMs from the new launcher striking a target vessel parked off shore. Though it’s impossible to tell from the still imagery, KCNA claims that the test verified the cruise missile’s guidance features and the “ultra low cruise flight system.” North Korea should release video footage of the test soon.

As I noted in my analysis earlier today, with the successful test of its new CDCM, North Korea has shown off its fourth brand new system since February’s reveal of the Pukkuksong-2. That’s four systems in under four months, underlining both North Korea’s rapid missile force diversification and pace of development. (A theme also in its April 15 parade this year, which featured a range of new systems.)

Despite a few hiccups and failed tests, notably for the Hwasong-12 intermediate-range ballistic missile, Kim Jong-un has mostly witnessed early successes with his new suite of missiles. (The new CDCM’s launcher is new, but the projectile itself has been in North Korea’s possession for some time.)

The CDCM is designed to deliver a conventional high explosive payload and is likely capable of comfortably attacking small- to medium-warships. Its maximum range is likely similar to the Russian Kh-35 off which it is originally based, which would mean it is probably capable of hitting targets up to at least 150 kilometers away and perhaps further depending on specific improvements included in North Korea’s variant.

In November 2016, a modern Korean People’s Navy corvette was spotted by NK News with a Kumsong-3 launcher on board.

A cruise missile capability, paired with North Korea’s claimed surface-to-air missile capability with a system like the Pongae-5, which recently was declared to have reached initial operating capability, could form the foundation of a reasonable anti-access/area denial (A2/AD) posture for Pyongyang.

Much, however, would depend on how sophisticated North Korea's intelligence, surveillance, and reconnaissance capabilities are. With its continued and steady testing of systems, however, Pyongyang continues to signal that it's marching ahead with an ever-more-sophisticated and diversified missile force.

<http://thediplomat.com/2017/06/north-korea-introduces-new-coastal-defense-cruise-missile-first-takeaways/>

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North Korea's Punggye-ri Nuclear Test Site: Media Report of Intensified Activity Cannot be Corroborated

By Joseph Bermudez and Jack Liu

June 13, 2017

A June 11, 2017 Asahi Shimbun news report described "intensified" activity at the Punggye-ri Nuclear Test Site "indicating Pyongyang may be preparing a sixth nuclear test, which it warned last month was 'imminent,'" and that "The preparations near the Punggyeri site match those of past occasions before North Korea conducted a nuclear test." The report quoted knowledgeable sources, who stated that nuclear scientists associated with nuclear materials and testing had gathered at the Punggye-ri Nuclear Test Site. It went on to state that, "traffic to the site has been apparently shut down at the checkpoints leading to the area in northeastern North Korea. However, movement of vehicles and humans within the test site continues to be active."

While we have no basis to judge the veracity of any claims concerning the movement of nuclear scientific personnel either to or within the site, new satellite imagery did not reveal unusual observable activity (e.g., an increased presence of vehicles or personnel) suggestive of a change from our previous assessment that the site is in a standby status to one that could be interpreted as late-stage nuclear test preparations. The nuclear personnel movement claim, if true, would most certainly have to have been based on information other than that gleaned from satellite imagery alone. It should also be noted that the Asahi Shimbun report included the disclaimer that, "It is unclear if that flurry of activity is a precursor to a nuclear test or simply an exercise to prepare or inspect the site."

It is possible that the additional "intensified" activity could be occurring at times when orbiting commercial imaging satellites do not have the test site in overhead view.

Regardless of the veracity of the Asahi Shimbun claims, given the previous activities observed from the beginning of this year through mid-April, additional nuclear tests should be considered possible at any time the North Korean leadership makes the decision to conduct them.

Commercial satellite imagery from June 10 reveals the following activities at the Punggye-ri test site.

North Portal

The North Portal shows few signs of new activity other than water being drained from portal (a fairly routine activity), two mining carts present near the engineering office building and no discernible new spoil present on the spoil pile. The net canopy (located 40 meters south of the North Portal) remains in place, but no equipment is observable under it. A small, unidentified object is in front of the North Portal, which has been present for at least the past month. There is nothing

observable in this area to suggest the presence of “intensive” activity as the Asahi Shimbun report claimed.

Main Administrative Area

Clearly identifiable vehicles or personnel are not present in either the upper or lower courtyards in this area used to support nuclear test activities. Rain runoff has partially washed away the volleyball court in the upper courtyard where another game was recently played as discerned from imagery in late May (volleyball and soccer are very common sports in North Korea and often observed in satellite imagery). Supplies previously observed in front of the greenhouse in May are now on the east side of the greenhouse. There appears to be either a small vehicle or stacked supplies present, but the net or tarp-covered supplies/equipment/small vehicles identified last month are no longer in the area.

Other Areas

Nothing new of significance was noted at either the West or South Portals, and the Command Center Area and guard barracks were shrouded in clouds.

Just south of the Main Administrative Area and north of the South Portal, construction of the new replacement support building continues at a rapid pace. The roof is nearly complete and fully covered with wood sheathing, with roof shingles being emplaced on one section. The two probable blue sheds/shipping containers, which had been newly placed near that construction area in mid-May, are no longer present and had been removed after a few days.

Numerous muddy ruts are visible along the access road leading north to the test site from the Command Center, suggesting vehicle activity following the recent rains. One unidentified vehicle is also present on the access road near a bridge that crosses the main creek. It should be noted that large portions of the road are now obscured with the advent of deciduous vegetative cover fully in leaf. The checkpoint gate near the Command Center, which was the only one visible on this image, was open. There is no observable corroborating evidence that access to the site is restricted as of June 10.

Implications

On the basis of the analysis of satellite imagery alone, given the unusually high level of activity observed earlier this year with no test forthcoming, and no significant new observable activity at the North Portal, we can only conclude that the facility remains in standby mode. Various low-level activities continue within and near the Main Administrative Area as reported above and in previous analyses. While we cannot confirm the recent media claim of “intensified” activity at the Punggye-ri Nuclear Test Site, as long as the site remains in standby status, a sixth nuclear test could be conducted at any time with minimal advance warning. At this point, renewed nuclear testing is almost entirely dependent on a North Korean leadership decision.

<http://www.38north.org/2017/06/punggye061317/>

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The Japan Times (Tokyo, Japan)

South Korea names new defense minister to counter North's missile, nuclear threat

Author Not Attributed

June 11, 2017

South Korean President Moon Jae-in on Sunday nominated a former navy chief as his defense minister, the president's office said, as the government faces challenges tackling North Korea's rapidly developing weapons program.

The nominee, Song Young-moo, was well suited to deal with North Korea's nuclear and missile threat, the presidential Blue House office said.

Under third-generation leader Kim Jong Un, North Korea has been conducting missile tests at an unprecedented pace in an effort to develop an intercontinental ballistic missile capable of striking the mainland United States.

The North test-launched a new type of its cruise anti-ship missiles Thursday, its fourth missile test since the South's Moon took office on May 10, pledging to engage in dialogue with Pyongyang.

Song, who served in the navy for more than three decades, was Moon's main security adviser during his presidential campaign, reprising his role in Moon's 2012 presidential campaign.

A decorated veteran, Song took part in a 2009 skirmish between North and South Korean naval vessels off the western coast of the Korean Peninsula.

Song's appointment does not need the National Assembly's approval, but he must attend a hearing and answer questions from lawmakers.

The Blue House said Song admitted to having falsely registered his residence information in the past, a criminal offense in South Korea. Many of Moon's ministerial choices have faced an uphill battle in the assembly on this and other ethical issues, and lawmakers are likely to grill Song the same way.

He is expected to cooperate with the United States, the country's major military ally, to respond to the North's growing missile threat.

The government has said it will not change a pact with the United States for the deployment of a U.S. anti-missile system in South Korea, despite its decision to put on hold the full installation pending an environmental impact review.

Moon also tapped a human rights expert as justice minister tasked with reforming the prosecutors' office, the president's office said.

Ahn Kyong-whan, the former chairman of South Korea's Human Rights Commission, now heads a nonprofit legal foundation, but has no background as a prosecutor, unusual in a candidate for the ministerial role.

<http://www.japantimes.co.jp/news/2017/06/11/asia-pacific/politics-diplomacy-asia-pacific/south-korea-names-new-defense-minister-counter-norths-missile-nuclear-threat/#.WUKUd2RKVTY>

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The Independent (London, UK)

North Korea Threatens to Drop Nuclear Bomb on New York to Prove Donald Trump Tweet Wrong

By Gabriel Samuels

June 14, 2017

The DPRK is about 10,400 km far away from New York, but this is just not a long distance for a strike today

North Korea has hinted that it could test a long range missile capable of hitting New York, months after President Donald Trump insisted: "It won't happen".

Accusing the US leader of underestimating the secretive Communist state's capabilities, an article last week in state-run newspaper Rodong Sinmun, suggested that it was close to developing an intercontinental ballistic missile (ICBM).

"Trump blustered early this year that the DPRK's final access to a nuclear weapon that can reach the US mainland will never happen," the editorial said, using an abbreviation for the country's official name, the Democratic People's Republic of Korea.

"The US is feeling uneasy as this might be proven in practice. The strategic weapons tests conducted by the DPRK clearly proved that the time of its ICBM test is not a long way off at all."

It added: "The DPRK is about 10,400 km far away from New York, but this is just not a long distance for a strike today."

The quotes were originally reported in Foreign Policy magazine.

Mr Trump took to Twitter in January after reports suggested that North Korea might test an ICBM.

"North Korea just stated that it is in the final stages of developing a nuclear weapon capable of reaching parts of the U.S," he wrote. "It won't happen!"

The pariah state responded with a statement suggesting it would test missiles when its leader Kim Jong-Un wanted to.

Last month, Lieutenant General Vincent Stewart, the US Defence Intelligence Agency chief, said it was "inevitable" that a nuclear weapon launched from North Korea would hit the US mainland.

At the end of last month, North Korea released photos of a Scud-type missile being launched and falling into the water off the western coast of Japan - the third such show of military aggression in the space of three weeks.

In recent weeks the US has sent a fleet of warships into North Korean waters, and brought several new launchers for a defence missile system to South Korea to cope with any military threat from north of the border.

North Korea maintains that its pursuit of nuclear weapons is solely a means of defending itself from foreign powers such as the US.

<http://www.independent.co.uk/news/world/asia/north-korea-nuclear-bomb-new-york-donald-trump-tweet-mocking-missile-capabilities-a7787686.html>

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The Hill (Washington, DC)

Top Armed Services Dem to Propose Bill to Address Russian Aggression

By Rebecca Kheel

June 13, 2017

The ranking member of the House Armed Services Committee will introduce in the coming weeks a bill aimed at forcing the Trump administration to craft a comprehensive policy to deter Russian aggression, he said Tuesday.

"Today, we are witnessing some of the most fundamental threats to our democratic values and to the cohesion of our alliances since the beginning of the post-World War II era. President Putin's campaign to erode our institutions poses a genuine threat to our system of government and our way of life," Rep. Adam Smith (D-Wash.) said in a statement.

"President Trump has only exacerbated this problem, belittling our allies and partners, embracing dictatorships and calling into question our collective security commitments. In this situation, Congress has a responsibility to do its utmost to push back against these dark trends."

The bill is the latest in lawmakers' attempts to force Trump's hand on Russia, with which he has expressed a desire to improve relations even as his campaign continues to be investigated for possible collusion. In the Senate, there have been efforts to attach Russia sanctions to an Iran sanctions bill.

Smith's bill, which he said he hopes will be folded into the upcoming annual defense policy bill, would require the Pentagon to develop and implement a comprehensive Russia strategy.

The bill cites a slew of examples of Russian aggression, including its interference in the U.S. election, violations of the Intermediate-Range Nuclear Forces (INF) Treaty, its stated defense strategy of "escalating to de-escalate" that allows for the use of nuclear weapons and its annexation of Crimea and support of separatists in eastern Ukraine.

"It is time for us to recognize that this challenge must become one of the central concerns of U.S. national security strategy, and that if we do not stand up to this menace, we stand to lose much of what we have sacrificed to build and preserve during the life of our country," Smith said. "This threat merits a comprehensive response that will deter Russian aggression, strengthen allied and partner defenses, and boost our cohesion while including measures to reduce the risk of nuclear war and avoiding a reckless plunge into a new nuclear arms race."

The bill would address the INF violations by requiring the president to submit a plan to Congress on imposing sanctions until Russia is back in compliance with the treaty.

In addition to the overall Russia strategy, the bill would require the Pentagon to craft a plan to reduce the risk of nuclear war in the face of Russia's "escalate to de-escalate" doctrine. It would also require a strategy to increase conventional precision-strike weapons stockpiles in Europe.

The bill would also require a plan to counter Russian military modernization and capabilities, such as drones, electronic warfare and long-range precision strike capabilities. The bill would further require a plan to train allied forces to counter Russian cyber and information operations.

Another report required by the bill would have to look at the location, capabilities and capacities of U.S. training areas in Europe.

The bill would also require a report on maintaining and expanding U.S. military presence in Europe that would have to assess new locations to permanently station troops in Europe and whether existing infrastructure can handle more troops, among other aspects.

“This bill represents a forceful and responsible counter to Russia’s provocations,” Smith said. “It is an attempt to lay the foundations for a new security effort to combat the spread of Putinism and increase the resilience of democratic societies.”

<http://thehill.com/policy/defense/337475-top-armed-services-dem-to-propose-bill-to-address-russian-aggression>

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The National Interest (Washington, DC)

715 Nuclear Weapons Tests Made Russia an Atomic Superpower (But at a Massive Cost)

By Kyle Mizokami

June 12, 2017

A grotesque show of might, nothing like Tsar Bomba was ever used again. On arguably the opposite end of the testing spectrum, the Soviet Union sought to extract some peaceful use of nuclear weapons. The bluntly titled Nuclear Explosions for the National Economy program saw 124 nuclear weapons detonated for “peaceful purposes,” including prospecting for oil and gas, damming and rerouting waterways, facilitating coal mining, creating lakes and underground natural-gas storage, and even creating an underground toxic-waste repository. The program was largely a failure; unsurprisingly, radioactive contamination was a frequent problem.

The Soviet Union exploded its first atomic bomb in 1949, just four years after the United States. Like the United States, the USSR conducted an aggressive testing schedule throughout the Cold War, ultimately conducting 715 nuclear tests over a period of forty-one years. Also like its rival—and to an even greater extent—the Soviet Union suffered nuclear contamination of its hinterland and unnecessary health risks to its people. Moscow was also responsible for testing of the large thermonuclear device ever built: the infamous “Tsar Bomba.”

The majority of Soviet nuclear tests were carried out at the Semipalatinsk Test Site (STS) in the Kazakh Soviet Socialist Republic. Like the Nevada desert, the Central Asian steppes functioned as a remote test site where atmospheric bomb tests could be conducted far from densely populated areas. 456 atomic and thermonuclear devices were tested at Semipalatinsk, many of them atmospheric tests.

Semipalatinsk was selected by former head of the NKVD Lavrenti Beria, who described the area as “uninhabited” and an ideal spot to test nuclear weapons. In fact the area surrounding the site was home to nearly seven hundred thousand people, many of whom lived in small rural villages. On August 29, 1949, the Soviet Union’s first atomic bomb, RDS-1, was detonated at STS. RDS-1 was a plutonium-based implosion device based on the Nagasaki bomb, from which secrets had been stolen. The bomb had an explosive yield of twenty-two kilotons, larger than the bombs detonated at Hiroshima and Nagasaki, in part due to a larger amount of plutonium. Radioactive fallout rained down on unsuspecting villagers in the region, a pattern that would continue for decades.

Like the U.S. military, the Soviet military also folded military exercises into their nuclear tests. The first such exercise was the Totskoye military exercise, in September 1954. This was the first test outside of Semipalatinsk and the first in European Russia, and involved forty-four thousand Soviet ground forces, including some stationed just 1.5 miles from ground zero. A Soviet Tu-4 “Bull” bomber dropped a forty-kiloton RDS-3 gravity bomb, which detonated at an altitude of one thousand feet. Within forty minutes of the explosion, troops were conducting maneuvers less than a

mile from ground zero. Many contracted radiation sickness and developed radiation-linked diseases, such as cancer and leukemia, later in their lives.

The majority of Soviet nuclear testing took place at STS, but nearly a third of all tests were exploded at the Mityushikha Bay Nuclear Testing Range on the island of Novaya Zemlya. An island the size of Maine in the Barents Sea, Novaya Zemlya was truly a desolate land mass. 244 bombs were tested at Mityushikha Bay, including the infamous “Tsar Bomba,” a gigantic fifty-megaton bomb that dwarfed the largest American test, the fifteen-megaton Castle Bravo.

It is impossible to describe Tsar Bomba without superlatives. Detonated by the Soviet Union on October 30, 1961, the 59,525-pound bomb was released from a modified Tu-95 “Bear” bomber. Tsar Bomba was so powerful that the Bear’s aircrew were given only a fifty-fifty chance of survival. The thermal radiation could induce third-degree burns against unexposed flesh at sixty-two miles, and the flash of light was visible at over six hundred miles. Wooden houses were demolished at distances of over one hundred miles, and the blast wave shattered windows at 560 miles. Tsar Bomba created a mushroom cloud forty miles high and fifty-nine miles wide.

A grotesque show of might, nothing like Tsar Bomba was ever used again. On arguably the opposite end of the testing spectrum, the Soviet Union sought to extract some peaceful use of nuclear weapons. The bluntly titled Nuclear Explosions for the National Economy program saw 124 nuclear weapons detonated for “peaceful purposes,” including prospecting for oil and gas, damming and rerouting waterways, facilitating coal mining, creating lakes and underground natural-gas storage, and even creating an underground toxic-waste repository. The program was largely a failure; unsurprisingly, radioactive contamination was a frequent problem.

Overall, Moscow conducted 219 atmospheric, water and space tests. Like the United States, the Soviet Union was bound by the Limited Test Ban Treaty of 1963 to restrict testing henceforth underground. Another 496 tests were conducted underground.

Like the United States, the Soviet Union’s military and civilian population also suffered from nuclear testing. Military personnel were exposed during incidents such as the Totskoye test. In 1992, it was estimated that approximately sixty thousand people living in Kazakhstan near the STS test site had died of radiation-induced cancers. Although much of the radiation in the area has since died away, birth defects resulting from chromosomal abnormalities continue to show up in children born three generations after radiation exposure.

The Soviet Union tested its last nuclear weapon on October 24, 1990, two years before the United States. Far from being a magnanimous gesture toward world peace, the Soviet Union was actually mere months from total dissolution. During the 1990s, Russian and Kazakh news media claimed a test had been prepared for May 1991, but the .3-kiloton device was abandoned in a tunnel four hundred feet underground. It was allegedly destroyed in 1995 by an eight-hundred-pound explosive charge.

The former Soviet republics have not acted to resume testing. All but Russia have renounced nuclear arms and turned over any inherited arsenals for disposal. Russia has shown little interest in further tests, instead concentrating on a new generation of delivery vehicles including the Bulava submarine-launched missile, Topol-MR mobile missile and Sarmat intercontinental ballistic missile. The unofficial testing moratorium between the United States and Russia continues to hold—for now.

<http://nationalinterest.org/blog/the-buzz/715-nuclear-weapons-tests-made-russia-atomic-superpower-21116>

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Scout.com (Minnetonka, MN)

Army Seeks Weapons-Counter Russia in Europe

By Sandra Erwin

June 14, 2017

Army leaders fear they have insufficient firepower to go head to head against Russia if war broke out in Eastern Europe. They want to ramp up production, and soon.

An eye-opening item in the 2018 defense budget request is the serious money that the U.S. Army is pumping into its arsenal of high-tech missiles and munitions.

The justification is simple: Army leaders fear they have insufficient firepower to go head to head against Russia if war broke out in Eastern Europe. They want to ramp up production, and soon. They are asking for \$3 billion worth of missiles and precision-guided munitions in the 2018 budget, and have submitted to Congress an additional \$2.3 billion munitions wish list as part of the military's "unfunded requirements" the services send to Capitol Hill every year.

And this is only the beginning of what senior Army commanders believe should be a long-term buildup in preparation for possible Russian aggression. The United States, they argue, cannot afford to deploy sufficient anti-missile systems to defeat a Russian volley, but instead, should amass a large enough arsenal of advanced weapons to discourage an attack in the first place.

A ramp-up in munitions manufacturing is a direct consequence of the Army's shift toward "offensive deterrence," observed Hamilton Cook, senior analyst at the consulting firm Avascent. "What you're really seeing in the budget is a shift to offensive fires."

The Army is feeling pressure to scale up production to level the playing field, as Russia has a much larger inventory of short-range missiles and artillery shells. The budget would fund orders for interceptor missiles like Patriot, but there is an even greater emphasis on tactical missiles and precision-guided rocket artillery, Cook noted. Production of the Army's guided multiple launch rocket systems would increase from 6,000 to 10,000 per year by 2020.

"This is an area of need where we are shorthanded," Cook said. These munitions will be needed "if we're looking at a return to combined arms warfare."

The budget also would accelerate the development of a new "long-range precision fires" missile for deep-strike offensive attacks. The Army is seeking \$102 million to build two prototypes by 2019. This program is viewed as essential to counter Russian missiles that currently out-range U.S. weapons.

Russia for decades has sought to modernize its conventional tactical weapons and bulk up its inventory to become less dependent on nuclear weapons. Russia easily could annihilate NATO and the United States with its nuclear-tipped missiles, but the U.S. has more than enough nukes to deter global destruction.

Since the first Gulf War, Russia has pursued arms programs such as a conventional long-range strike to build a robust non-strategic force.

A high-level Army official recently laid out the situation in blunt terms. "The most likely adversary in the near term is North Korea," he said. "The most dangerous adversary in the out-years is Russia."

The size, scale, and scope of Russia's missile force is keeping generals up at night, the official told an industry conference, requesting that he not be quoted by name. "The problem is the numbers. They

have such an inventory that we can't keep pace," he said. "Can we shoot them down? Yes, but the question becomes for how long."

The official repeated the complaint that others have leveled about Russia: Its deployment of weapons that violate a 1987 arms control treaty that bans ground-launched ballistic and cruise missiles with ranges of between 500 and 5,500 km. Many of Russia's tactical ballistic missiles can reach 1,000 km, the official said. "Whereas all our systems go 499 clicks."

Many lawmakers on Capitol Hill are prepared to support the Army's big munitions budget, Cook said. "They are very concerned about the air and missile defense gap."

The Army's goal is to gain leverage in the "numbers game," said Jim Tinsley, Avascent managing director. "They extend the inventory, so it forces us to defend before they start applying the more expensive and precise weapons."

U.S. enemies know the United States will only have a limited supply of anti-missile interceptors that cost six-digits. They build more cruise and ballistic missiles, the United States ups its missile defenses, and the likely outcome is that "our magazines will run out before theirs," Tinsley said.

The Pentagon has sought to address this problem by investing in new technologies like railguns, laser weapons and high-velocity projectiles that would offer far more economical options. Those systems are still years away, however. A collection of defensive technologies and sensor networks known as "integrated air and missile defense" is how the Army and Air Force envision defeating future enemies like Russia. U.S. forces would take out enemy drones, satellites, communications, to disrupt their ability to launch missiles. This concept is still in development and has stirred some tension between the Army and the Air Force over how air forces would support troops on the ground. The Air Force, for instance, would have a primary role in shooting down enemy cruise missiles.

A war in Eastern Europe would be a testing ground for the U.S. military's emerging concept of "multi-domain" warfare where the services are more closely interdependent. The new long-range precision fires missile will have a range 150 km longer than current Army missiles but a fight where the Russians are lobbing missiles out to 1,000 km would require help from the Air Force, Tinsley noted. "The question of which service will own the command-and-control infrastructure has been one of the biggest debates."

<http://www.scout.com/military/warrior/story/1784856-army-seeks-weapons-counter-russia-in-europe>

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Eagle Radio (Guilford, UK)

Cuts to Police Who Guard Nuclear Weapons Could be 'Catastrophic'

Author Not Attributed

June 15, 2017

Further cuts planned for the police force which guards the UK's nuclear arsenal could be "catastrophic", according to a leading police officer.

The Ministry of Defence Police (MDP) guards the country's Trident nuclear deterrent, among other responsibilities.

The force is already understaffed with about 2,300 officers, according to the Defence Police Federation (DPF).

DPF chairman Eamon Keating will use a speech later to warn that plans to "reset" its strength to below that level will "harm national security".

The MDP's officers are all trained to use firearms and Mr Keating says cutting numbers means fewer available to help in a national emergency as part of Operation Temperer.

Temperer kicked in after the Manchester terror attack, when the threat risk was deemed critical. In that case, the military were deployed to help police.

"After a decade of budget and personnel cuts, it beggars belief the MoD would demand a further £12.5m from the police force entrusted with guarding Trident," Mr Keating will tell the DPF's annual conference.

"This 'reset' is an ill-considered decision that prioritises cost over security, and makes no sense given the financial value of the assets we protect," Mr Keating will say.

Just a year ago the MDP had 2,600 officers - that was already a third down on previous levels after budget cuts in 2010.

The federation will also demand more detail on Conservative manifesto plans for an "Infrastructure Policing Force" by merging the MDP, the Civil Nuclear Constabulary and British Transport Police.

Mr Keating will add: "The Government must urgently rethink this catastrophic decision that further undermines police officers hamstrung by fitness tests inappropriate to the job they do, and a pension age different to the Home Office and Armed Forces."

A Ministry of Defence spokesman said: "We are confident that the strength of our force keeps our people, sites and equipment safe.

"It also enables us to play our part in protecting the public, as we did when we supported the armed police response to the tragic events in Manchester last month."

<https://www.964eagle.co.uk/news/uk-news/2309313/cuts-to-police-who-guard-nuclear-weapons-could-be-catastrophic/>

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Politifact (Washington, DC)

Is Iran Complying With the Nuclear Deal? For the Most Part, Yes

By John Kruzel

June 14, 2017

Republican Karen Handel took aim at the Iran nuclear deal in two recent televised debates ahead of Georgia's special election, accusing Iran of failing to comply with the agreement to scale back its nuclear program in exchange for relief from crippling economic sanctions.

"From the things that I have seen, they are and (have) already violated the terms of the deal," Handel said in a June 8 debate against Democrat Jon Ossoff ahead of the June 20 vote.

In the campaign for Georgia's 6th, a historically Republican congressional district, Handel has been sharply critical of the agreement, which President Donald Trump disparaged as the "worst deal

ever negotiated" during his 2016 run. GOP attack ads launched in May sought to paint Ossoff as a dangerous national security naif in part by highlighting his support for the Obama-era deal.

The agreement, formally known as the Joint Comprehensive Plan of Action, or JCPOA, was signed in 2015 by the United States and Iran, as well as China, Russia, France, Germany and the United Kingdom.

Under the deal, Iran has agreed not to pursue nuclear weapons and to allow continuous monitoring of its compliance. The United States and other countries agreed to lift sanctions on the condition that Iran abide by its end of the bargain, lest sanctions be reimposed.

The deal's finer details get very technical very quickly, with dozens of limitations placed on Iran's nuclear-related activities. But the major points concern Iran giving up materials it could use to quickly build a nuclear weapon.

Iran agreed to relinquish nearly all of its enriched uranium stockpile (97 percent) and 70 percent of its centrifuges, which are used to enrich uranium. It also agreed to stop plutonium production and to dismantle its plutonium reactor.

Because Iranian compliance is a crucial national security issue, we decided to look closer at Handel's repeated claims that the Islamic Republic had violated the terms of the deal.

Iran is in compliance

The prevailing view among foremost authorities is that Iran has complied with the deal.

The International Atomic Energy Agency, the UN's nuclear watchdog, has primary monitoring responsibility, and its quarterly reports are considered the authoritative view of Iran's compliance.

With a couple of minor exceptions we'll deal with later, the agency has repeatedly found Iran to be in compliance with the terms of the agreement.

The U.S. State Department, which is required to report to Congress every 90 days on Iran's compliance, also certified in April that the Islamic Republic is living up to its end of the deal.

Additionally, experts we interviewed agreed Iran is complying with nuclear pact.

So case closed, right? Mostly, but with some minor qualifications.

Excessive 'heavy water' a drop in the bucket

While the IAEA has certified Iran's compliance in its quarterly reports, Iran's record is not without blemishes. The Handel campaign zeroed in on those.

Handel's campaign aide pointed us to news reports and congressional testimony that highlighted instances where Iran committed two small infractions of a highly technical nature.

The deal says Iran can keep 130 metric tons of "heavy water," a modified liquid used in some nuclear reactors. However, Iran has twice crept over its limit, according to the IAEA, each time by a fraction of one ton.

These breaches formed the core basis of Handel's claim that Iran violated the nuclear deal. Some experts we spoke to said Iran has tried to create wiggle room by interpreting portions of the agreement to favor their own interests. But the clear consensus is that it overstates the case to say Iran has violated the deal.

Daryl Kimball, the executive director Arms Control Association, downplayed the heavy water issue as a "minor infraction," and noted that Iran currently does not have a functioning heavy water

reactor. In other words, from a practical standpoint, the issue is essentially moot because excessive heavy water wouldn't move Iran closer to building a nuclear weapon.

Several experts also noted Iran quickly rectified its breach to come back into compliance.

Handel's campaign pointed us to congressional testimony by David Albright, president of the Institute for Science and International Security, who warned lawmakers in February about Iran exceeding its heavy water cap.

But Handel's own source now appears to have a more sanguine view on the state of Iran's compliance.

"Iran appears to be complying more strictly with JCPOA limitations over which it was facing controversy, such as the heavy water cap," Albright wrote in a June 5 analysis of the IAEA's latest Iran report.

It is also worth noting that Albright told lawmakers on April 5 that he did not believe Iran's excessive supply of heavy water justified reimposing sanctions.

Inevitable 'small hiccups'

Several experts said that under any technical agreement there are bound to be minor implementation issues.

"A complex, technical process like this one is inevitably going to face small hiccups," said Ariane M. Tabatabai, visiting assistant professor at Georgetown University's School of Foreign Service. "Just as Iran believes there have been hiccups on the U.S. side."

She added it's important to distinguish brief slip-ups — like Iran's temporary, slightly excessive heavy water inventory — from major violations.

"What's critical to watch is whether the parties settle those issues in a timely manner and whether they remain fairly minor," Tabatabai said. "So far, the IAEA, State (Department) and the (European Union) believe this was the case."

Richard Nephew, senior research scholar on global energy policy at Columbia University, added that allegations of cheating are best reserved for clear-cut, consequential breaches, should they arise.

"I don't agree with Ms. Handel's assertion," he said, "and think that it is overstated."

Our ruling

Handel said Iran has "violated the terms of the (nuclear) deal."

The IAEA, the foremost authority on the matter, has repeatedly deemed Iran in compliance with the nuclear deal. The State Department has also certified the Islamic Republic is holding up its end of the bargain, and a host of experts affirmed these definitive findings.

However, the IAEA did report two instances where Iran barely -- and briefly -- exceeded its supply of a nuclear reactor component known as "heavy water."

But experts said this minor breach posed no practical risk of moving Iran closer to developing a nuclear weapon, and added that such infractions should not be interpreted to mean Iran has not complied with terms of the deal.

We rate Handel's statement Mostly False.

<http://www.politifact.com/georgia/statements/2017/jun/14/karen-handel/iran-complying-nuclear-deal-yes-small-hiccups/>

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PressTV (Tehran, Iran)

Iran Calls on US to Fulfill Commitments Under Nuclear Deal

Author Not Attributed

June 14, 2017

Iran's ambassador to the International Atomic Energy Agency (IAEA) says the US needs to honor its commitments under the landmark nuclear agreement between Tehran and the P5+1 group of countries.

Reza Najafi made the remarks while speaking to reporters in Vienna on Wednesday after an IAEA Board of Governors meeting, which focused on a report by the agency's chief, Yukiya Amano, on the implementation of the Iranian nuclear agreement, known as the Joint Comprehensive Plan of Action (JCPOA).

During the session, "we said the way the US is dealing with its commitments under the JCPOA is not acceptable to Iran, and the US needs to live up to its obligations, Najafi said.

The envoy said Iran's nuclear program was going ahead as per the JCPOA and that the latest IAEA report showed Iran's commitment to all of its obligations.

The Iranian delegation, however, stressed during the meeting that the JCPOA would be "sustainable" only if all parties fulfilled their obligations stipulated in the deal, he added.

Iran and the five permanent members of the United Nations Security Council – the United States, France, Britain, Russia and China – plus Germany signed the JCPOA in July 2015 and started implementing it in January 2016.

Under the JCPOA, Iran undertook to put limitations on its nuclear program in exchange for the removal of nuclear-related sanctions imposed against Tehran.

During his presidential campaign, US President Donald Trump had promised to ditch the nuclear accord which he referred to as a "disaster" and "the worst deal ever negotiated."

The IAEA, which is monitoring the implementation of the JCPOA, has confirmed Iran's commitment to its obligations under the agreement.

Iran in talks to sell excess heavy water

Elsewhere in his remarks, the Iranian envoy said Iran was in talks with potential buyers to sell its excess heavy water.

As part of the JCPOA, Iran is expected to keep its heavy water stockpile below 130 metric tonnes. The deal says all excess heavy water "will be made available for export to the international market based on international prices and delivered to the international buyer."

The head of the Atomic Energy Organization of Iran said in October last year that Iran had sold 32 tonnes of heavy water to the United States and delivered 38 tonnes of the nuclear substance to Russia.

Ali Akbar Salehi also said in November 2016 that the country had transferred 11 tonnes of heavy water to Oman as part of its obligations under the JCPOA.

<http://www.presstv.ir/Detail/2017/06/14/525285/Iran-US-nuclear-deal-IAEA-nuclear-deal>

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France 24 (Paris, France)

UN Atomic Watchdog Confirms Iran is Complying With Nuclear Deal

Author Not Attributed

June 12, 2017

Iran is sticking to the 2015 nuclear deal with major world powers, the UN atomic watchdog reported Friday, as the CIA named a new hardline chief to lead its Iran operations, according to a US media report.

The report was the second since the January inauguration of US President Donald Trump, who has called the pact between six powers and Iran "the worst deal ever negotiated" and in contrast with his predecessor, Barack Obama, branded Tehran an enemy.

Trump has vowed to dismantle the "disastrous" deal and has ratcheted up US sanctions, calling for Iran to be isolated and throwing his weight behind Tehran's arch-rival Saudi Arabia.

But the latest report by the International Atomic Energy Agency (IAEA) showed Iran's nuclear activities remain reduced, making any push to an atomic bomb much harder than before the agreement.

Iran's stock of low-enriched uranium -- used for peaceful purposes, but when further processed for a weapon -- remained below the agreed limit of 300 kilogrammes (661 pounds), the report said.

The quarterly assessment said Iran "has not pursued the construction of the Arak... reactor" -- which could give it weapons-grade plutonium -- and has not enriched uranium above low-purity levels.

Iran's stock of heavy water, used as a reactor coolant, was 128.2 tonnes. Iran has previously inched above an agreed ceiling of 130 tonnes a number of times and has shipped the excess abroad.

The agreement between Iran and the United States, Russia, China, France, Britain and Germany was agreed in Vienna in July 2015, after years of negotiations. It came into force in January 2016.

'Ayatollah Mike' leads CIA's Iran operations

The new IAEA report is unlikely to sway the Trump administration as it continues to voice concern about other Iranian actions, including ballistic-missile testing and what it calls Tehran's role as a "state sponsor of terrorism".

In a sign of Washington's toughened stance, the CIA has named the hardline chief of its hunt for Osama bin Laden and head of its lethal drone program to lead Iran operations, the New York Times reported Friday.

Michael D'Andrea, a 60-year-old seasoned intelligence official, has been put in charge of the CIA's Iran operations, current and former intelligence officials told the US daily.

Although officially undercover and not acknowledged by the CIA, D'Andrea has been a key figure in the fight against jihadist groups.

A convert to Islam who is known as the Dark Prince or Ayatollah Mike, D'Andrea was chief of the agency's Counter-Terrorism Center during the 2000s, during which he oversaw the hunt for al Qaeda chief bin Laden, who was killed in a 2011 US commando raid in Pakistan.

He also led the Obama administration's controversial "targeted killing" programme using drones that left thousands of militants and civilians dead, mainly in Pakistan and Afghanistan.

The choice of D'Andrea to run the CIA's Iran operations was made by Mike Pompeo, who took a hard line against Iran and the Iran nuclear deal as a Republican congressman before Trump appointed him to be CIA director in January.

Pompeo and D'Andrea could be key to administration attempts to ensure Iran is sticking to its commitments under the nuclear deal, or find violations that would support Trump's campaign pledge to tear up the agreement.

Tehran seeks to boost trade

The accord saw Iran substantially reduce its nuclear programme and submit to ultra-close IAEA oversight, making much tougher any "breakout" attempt to make a bomb before the world can react.

In return, UN and Western sanctions related to the nuclear standoff were lifted -- in particular on Tehran's oil exports --- thus unlocking billions of dollars in funds frozen overseas.

However, other sanctions related to human rights and Iran's missile activities have remained in place, frustrating Tehran's efforts to boost trade.

On May 17, Trump renewed a waiver of nuclear-related US sanctions on Iran but he has ordered a review of the main nuclear deal.

Last month, Trump chose Saudi Arabia for his first foreign trip, announcing \$110 billion in arms deals and saying Iran "funds, arms and trains terrorists, militias and other extremist groups... across the region".

US Secretary of State Rex Tillerson has also expressed misgivings about time periods in the Iran deal, which will allow the Islamic republic to increase its enrichment capacity again starting in 2026.

<http://www.france24.com/en/20170602-un-atomic-watchdog-iaea-confirms-iran-complying-nuclear-deal-cia-trump>

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Kurdistan 24 (Erbil, Iraq)

IS' Capabilities to Produce Chemical Weapons Severely Reduced

By Karzan Sulaivany

June 13, 2017

The Islamic State's (IS) ability to produce chemical weapons has been significantly hampered since the Mosul offensive began, a London-based analysis group said on Tuesday.

A recent report by information services company IHS Markit revealed the insurgent group's capabilities had been "severely affected" by the targeted killing of their weapons experts.

However, the report cautioned that the militant group is still likely capable of producing "small batches of sulfur mustard and chlorine agents."

The IHS Markit analysis found that IS had carried out nine chemical weapons attacks in Iraq's Mosul and one in Diyala Province, as well as one in neighboring Syria this year.

According to Columb Strack, a senior Middle East analyst at IHS Markit, the US-led offensive in Mosul has contributed to the decrease in chemical attacks by IS.

"The operation to isolate and recapture the Iraqi city of Mosul coincides with a massive reduction in [IS] chemical weapons use in Syria," he explained.

"This suggests that the group has not established any further chemical weapons production sites outside Mosul," Strack concluded.

The IHS Markit analyst added it was "likely that some [of the extremist group's] specialists were evacuated to Syria and retain expertise."

IS has been accused of conducting nearly 70 chemical weapons attacks since July 2014 in both Iraq and Syria.

According to IHS Markit, these attacks "involved either the use of chlorine or sulfur mustard agents, delivered with mortars, rockets, and IEDs."

IS has lost large swaths of the territory it once controlled in Iraq since 2014.

Iraqi security forces with the help of US-led coalition airstrikes are targeting the group in Mosul, their remaining stronghold in Iraq.

<http://www.kurdistan24.net/en/news/444b0128-f892-4a5b-85bf-a79fe202f1fe>

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Firstpost (New Delhi, India)

India-US Nuclear Deal: All You Need to Know About the Landmark Agreement

Author Not Attributed

June 13, 2017

The India-US nuclear deal was initiated in 2005, after nearly 30 years of US-imposed sanctions since India tested its first nuclear weapon (1974).

On 18 July, 2005, the then prime minister, Manmohan Singh visited Washington, and in a joint statement with George W Bush, India and the United States agreed to enter into a civil nuclear agreement.

This landmark agreement saw an implicit recognition – for the first time – of India as a nuclear weapons power.

Singh's visit also coincided with the completion of the Next Steps in Strategic Partnerships (NSSP) which had been announced in January 2004, and which aimed to increase cooperation in civilian nuclear activities, civilian space programmes, high-technology trade, and missile defence.

The core of this agreement, in the area of nuclear energy, was the emphasis on non-proliferation of Weapons of Mass Destruction (WMD). Even though India did not officially join the Non-Proliferation Treaty (NPT), through this agreement it was afforded the same benefits and advantages as other leading nuclear powers, like the United States.

The then Under Secretary of State for Political Affairs Nicholas Burns said, "India committed itself in public, very specifically to a series of actions to which it had not previously committed itself. Actions, which will, in effect, in a de facto sense, have India agreeing to the same measures that most of the NPT states have agreed to."

While the joint statement and related press releases list a wide range of responsibilities and actions, three essential ones were:

1. India would move to separate civilian and military nuclear facilities. India's impetus – which was acknowledged by Bush – to continue developing its nuclear facilities has to do with its increased reliance on fossil fuels to meet its energy needs. Thus, safe, civilian nuclear energy would help in the sustainable development of India's economy.
2. India would place these civilian nuclear facilities under the International Atomic Energy Agency (IAEA) safeguards.
3. India would refrain from transfer of enrichment and reprocessing technologies to states that do not have them and supporting international efforts to limit their spread.

The US, for its part, would work toward full civil nuclear cooperation with India, including granting India a waiver from the Nuclear Suppliers Group (NSG), which would allow members to trade nuclear material with India even though it was not a part of the NPT. As part of the earlier sanctions, India had been isolated from the NSG.

Despite opposition from parties in both the countries, Congressional approval for the US-India Agreement for Cooperation Concerning Peaceful Uses of Nuclear Energy (123 Agreement) came in October 2008. Before that, on 25, September 2008, Singh visited Washington and addressed Bush on the imminent completion of the deal.

He said, "I am mentioning civil nuclear initiative because for 34 years, India has suffered from a nuclear apartheid. We have not been able to trade in nuclear material, nuclear reactors, nuclear raw materials. And when this restrictive regime ends, I think a great deal of credit will go to president Bush. And for this I am very grateful to you, Mr President."

In 2009, as Barack Obama entered the White House, concerns were voiced about US involvement with Pakistan and China, and how that would affect US ties with India following the Bush administration. However, during Singh's visit to Washington in November, 2009, Obama vowed to uphold the historic nuclear agreement.

In a joint statement issued by Singh and Obama, India and US reaffirmed the terms of the nuclear agreement, emphasised their respective moratorium on nuclear testing and the increasing need to work towards global non-proliferation.

They looked forward to the Nuclear Security Summit convened in Washington in April 2010, which saw a more urgent call for non-proliferation of nuclear weapons, especially in response to non-state

agents acquiring WMD. Singh addressed the summit and outlined India's unwavering commitment to non-proliferation and disarmament, and the use of nuclear energy for safe and clean energy.

He also announced the establishment of India's Global Centre for Global Energy Partnership.

In September 2014, when Prime Minister Narendra Modi visited Washington for the first time after taking office, the nuclear deal was once again discussed. This proves how, through the years, the nuclear deal has been the bedrock of India-US ties. Despite this, however, not much has been accomplished in terms of nuclear energy as part of this deal. Indeed, according to a piece in The Indian Express, India has not bought a single reactor from the US over the decade since the deal was signed.

Instead, achievements of the deal have been measured against different yardsticks — the most important being the burgeoning diplomatic and economic relationship between India and the US — which acquires immense significance when compared to the complete alienation of the two countries following India's 1974 nuclear test.

Finally, according to The Times of India, during Modi's June 2016 visit to Washington, he and Obama decided upon the establishment of six nuclear reactors in India built by the American firm Westinghouse. Additionally, Obama expressed support for India's application to enter the NSG. Thus, even though this will be the first policy decision based upon this longstanding nuclear deal, the favourable light that it shines on India-US ties truly represent the effects of this deal.

<http://www.firstpost.com/india/india-us-nuclear-deal-all-you-need-to-know-about-the-landmark-agreement-3596209.html>

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The National Interest (Washington, DC)

Forget North Korea: Why the World Should Fear Pakistan's Nukes

By Kyle Mizokami

June 15, 2017

Pakistan is clearly developing a robust nuclear capability that can not only deter but fight a nuclear war. It is also dealing with internal security issues that could threaten the integrity of its nuclear arsenal. Pakistan and India are clearly in the midst of a nuclear arms race that could, in relative terms, lead to absurdly high nuclear stockpiles reminiscent of the Cold War. It is clear that an arms-control agreement for the subcontinent is desperately needed.

Sandwiched between Iran, China, India and Afghanistan, Pakistan lives in a complicated neighborhood with a variety of security issues. One of the nine known states known to have nuclear weapons, Pakistan's nuclear arsenal and doctrine are continually evolving to match perceived threats. A nuclear power for decades, Pakistan is now attempting to construct a nuclear triad of its own, making its nuclear arsenal resilient and capable of devastating retaliatory strikes.

Pakistan's nuclear program goes back to the 1950s, during the early days of its rivalry with India. President Zulfikar Ali Bhutto famously said in 1965, "If India builds the bomb, we will eat grass or leaves, even go hungry, but we will get one of our own."

The program became a higher priority after the country's 1971 defeat at the hands of India, which caused East Pakistan to break away and become Bangladesh. Experts believe the humiliating loss of territory, much more than reports that India was pursuing nuclear weapons, accelerated the

Pakistani nuclear program. India tested its first bomb, codenamed “Smiling Buddha,” in May 1974, putting the subcontinent on the road to nuclearization.

Pakistan began the process of accumulating the necessary fuel for nuclear weapons, enriched uranium and plutonium. The country was particularly helped by one A. Q. Khan, a metallurgist working in the West who returned to his home country in 1975 with centrifuge designs and business contacts necessary to begin the enrichment process. Pakistan’s program was assisted by European countries and a clandestine equipment-acquisition program designed to do an end run on nonproliferation efforts. Outside countries eventually dropped out as the true purpose of the program became clear, but the clandestine effort continued.

Exactly when Pakistan had completed its first nuclear device is murky. Former president Benazir Bhutto, Zulfikar Bhutto’s daughter, claimed that her father told her the first device was ready by 1977. A member of the Pakistan Atomic Energy Commission said design of the bomb was completed in 1978 and the bomb was “cold tested”—stopping short of an actual explosion—in 1983.

Benazir Bhutto later claimed that Pakistan’s bombs were stored disassembled until 1998, when India tested six bombs in a span of three days. Nearly three weeks later, Pakistan conducted a similar rapid-fire testing schedule, setting off five bombs in a single day and a sixth bomb three days later. The first device, estimated at twenty-five to thirty kilotons, may have been a boosted uranium device. The second was estimated at twelve kilotons, and the next three as sub-kiloton devices.

The sixth and final device appears to have also been a twelve-kiloton bomb that was detonated at a different testing range; a U.S. Air Force “Constant Phoenix” nuclear-detection aircraft reportedly detected plutonium afterward. Since Pakistan had been working on a uranium bomb and North Korea—which shared or purchased research with Pakistan through the A. Q. Khan network—had been working on a uranium bomb, some outside observers concluded the sixth test was actually a North Korean test, detonated elsewhere to conceal North Korea’s involvement although. There is no consensus on this conclusion.

Experts believe Pakistan’s nuclear stockpile is steadily growing. In 1998, the stockpile was estimated at five to twenty-five devices, depending on how much enriched uranium each bomb required. Today Pakistan is estimated to have an arsenal of 110 to 130 nuclear bombs. In 2015 the Carnegie Endowment for International Peace and the Stimson Center estimated Pakistan’s bomb-making capability at twenty devices annually, which on top of the existing stockpile meant Pakistan could quickly become the third-largest nuclear power in the world. Other observers, however, believe Pakistan can only develop another forty to fifty warheads in the near future.

Pakistani nuclear weapons are under control of the military’s Strategic Plans Division, and are primarily stored in Punjab Province, far from the northwest frontier and the Taliban. Ten thousand Pakistani troops and intelligence personnel from the SPD guard the weapons. Pakistan claims that the weapons are only armed by the appropriate code at the last moment, preventing a “rogue nuke” scenario.

Pakistani nuclear doctrine appears to be to deter what it considers an economically, politically and militarily stronger India. The nuclear standoff is exacerbated by the traditional animosity between the two countries, the several wars the two countries have fought, and events such as the 2008 terrorist attack on Mumbai, which were directed by Pakistan. Unlike neighboring India and China, Pakistan does not have a “no first use” doctrine, and reserves the right to use nuclear weapons, particularly low-yield tactical nuclear weapons, to offset India’s advantage in conventional forces.

Pakistan currently has a nuclear “triad” of nuclear delivery systems based on land, in the air and at sea. Islamabad is believed to have modified American-built F-16A fighters and possibly French-

made Mirage fighters to deliver nuclear bombs by 1995. Since the fighters would have to penetrate India's air defense network to deliver their payloads against cities and other targets, Pakistani aircraft would likely be deliver tactical nuclear weapons against battlefield targets.

Land-based delivery systems are in the form of missiles, with many designs based on or influenced by Chinese and North Korean designs. The Hatf series of mobile missiles includes the solid-fueled Hatf-III (180 miles), solid-fueled Hatf-IV (466 miles) and liquid-fueled Hatf V, (766 miles). The CSIS Missile Threat Initiative believes that as of 2014, Hatf VI (1242 miles) is likely in service. Pakistan is also developing a Shaheen III intermediate-range missile capable of striking targets out to 1708 miles, in order to strike the Nicobar and Andaman Islands.

The sea component of Pakistan's nuclear force consists of the Babur class of cruise missiles. The latest version, Babur-2, looks like most modern cruise missiles, with a bullet-like shape, a cluster of four tiny tail wings and two stubby main wings, all powered by a turbofan or turbojet engine. The cruise missile has a range of 434 miles. Instead of GPS guidance, which could be disabled regionally by the U.S. government, Babur-2 uses older Terrain Contour Matching (TERCOM) and Digital Scene Matching and Area Co-relation (DSMAC) navigation technology. Babur-2 is deployed on both land and at sea on ships, where they would be more difficult to neutralize. A submarine-launched version, Babur-3, was tested in January and would be the most survivable of all Pakistani nuclear delivery systems.

Pakistan is clearly developing a robust nuclear capability that can not only deter but fight a nuclear war. It is also dealing with internal security issues that could threaten the integrity of its nuclear arsenal. Pakistan and India are clearly in the midst of a nuclear arms race that could, in relative terms, lead to absurdly high nuclear stockpiles reminiscent of the Cold War. It is clear that an arms-control agreement for the subcontinent is desperately needed.

<http://nationalinterest.org/blog/the-buzz/forget-north-korea-why-the-world-should-fear-pakistans-nukes-21166>

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The New Indian Express (New Delhi, India)

NSG and India's Changing Diplomacy

By Swaran Singh

June 14, 2017

Delegations from various nations will be arriving this weekend at the beautiful Swiss capital Bern for the 2017 plenary of the Nuclear Suppliers Group (NSG). However, India's efforts to obtain membership have drastically changed this time reflecting quick learning from the hype that had boomeranged at last year's Seoul plenary.

Riding on the support of the US, a country that had obtained it a special 'waiver' in 2008, New Delhi not only formally applied for NSG membership in May 2016, but also launched an aggressive diplomatic footwork including an unannounced visit of its foreign secretary to Beijing—seen as a major outlier among the 10 nations of the 48-member group who remain unconvinced of India's credentials.

Given that the NSG works on consensus, extensive discussions at Seoul did not deliver membership to India. This made the spokesperson of India's ministry of external affairs blame "one country". This marked the beginning of a visible dip in China-India ties that saw its lowest point when India abstained from Beijing's Belt and Road Forum in May. The move has made India's membership

“more complicated”, said Li Huilai, China’s assistant minister for foreign affairs. This means India’s entry into the NSG will not be happening in any hurry.

One, India has given up direct negotiations with Beijing since the last two parleys between China’s chief nuclear negotiator Wang Qun and India’s secretary for disarmament Amandeep Gill that happened in September and October 2016. PM Modi is believed to have raised the NSG issue during his recent meeting with Chinese President Xi Jinping. Two, in the face of complete silence of President Trump on whether the US will engage China to make it support India’s NSG bid, New Delhi has begun engaging old friend Russia and various European countries hoping to use their good offices to, not pressurise, but convince the outliers on India’s bid.

But nuclear giants Westinghouse and Areva are in deep financial crisis and likely to renege on their contracts further limiting India’s leverages with America and France. Thus in the face of decline in global interest in nuclear power and the shrinking leverages of New Delhi, India has begun talking of indigenisation of nuclear technologies signalling to its major suppliers like Russia that they must use their leverages to convince Beijing on India’s NSG membership.

China, of course, continues to persist with its “two-stage” approach for all non-NPT (Nuclear Non-Proliferation Treaty) signatories—to first evolve a general criteria on membership followed by a separate debate on each of these cases. India believes it cannot be equated with any other fresh case as it has already obtained a NSG special ‘waiver’ to freely participate in global commerce in nuclear materials and technologies. What makes Beijing’s approach painful is that by treating New Delhi as a fresh case, it equates India with Pakistan which had also applied for NSG membership during May 2016. China’s recent dalliance with Pakistan, especially its ‘flagship’ China-Pakistan Economic Corridor, makes India suspicious of its motives.

India’s entry into the Missile Technology Control Regime (MTCR) last year conferred it the advantage of potentially blocking China’s entry into the group. But it also weakened India’s leverages compared to its original policy of negotiating a ‘package deal’ on joining all four technology control regimes—NSG, MTCR, Australia Group and Wassenaar Arrangements (meant to control international flow of nuclear, missile, chemical and conventions weapons’ materials and technologies).

Leaders of all five permanent members of the UN Security Council visited India during July–December 2010. With their endorsement of India’s membership to these four regimes, India was inching towards a metamorphosis: from being an outlier to becoming an integral part of global governance on flow of advanced technologies. Now India has to negotiate each of these individually.

China’s continued rise and its increasingly assertive policies in the face of shrinking US global leadership have introduced novel structural changes that India must reckon with. To get China onboard, India may have to relent on its discomfort with Pakistan’s NSG membership while ensuring that India does not get equated with it. India cannot be bracketed with Pakistan whose underground Walmart of nuclear supplies under A Q Khan was busted way back in 2004 making nuclear terrorism the most formidable concern for US President Obama’s celebrated four biennial global Nuclear Security Summits.

<http://www.newindianexpress.com/opinions/2017/jun/14/nsg-and-indias-changing-diplomacy-1616344--1.html>

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IndraStra (India)

Pakistan's Nuclear Threshold: Not as Low as Perceived

By Sitakanta Mishra

June 10, 2017

At slightest pretext, Pakistan threatens to use nuclear weapons against anyone it feels insecure, and more so against India. The introduction of tactical nuclear weapons (TNWs) into its inventory has been portrayed to have sufficiently lowered its nuclear threshold. Rawalpindi appears to believe that there is no space for conventional war, and it can use nuclear weapons on the battlefield if New Delhi crosses its 'redlines' without triggering a 'massive' nuclear retaliation. On the contrary, New Delhi appears to believe that a limited conventional war can be fought and won below Pakistan's nuclear threshold.

Almost two decades have been passed since the 1998 nuclear tests by India and Pakistan during which existence of "nuclear weapons may have limited the risks of war, but they do not inhibit either side from engaging in low-level conflicts." The logic of deterrence no doubt holds in South Asia, but the same does not obviate limited conventional conflicts. The Kargil war in 1999, Operation Parakram in 2001-02, and the surgical strike by India in 2016 represent rather a combination of Pakistani boldness and Indian calibrated action that have surprised proponents of the 'stability-instability paradox'. It "remains unclear and will always remain so" as to "how deep into Pakistan would be deep enough for India to obtain its objectives; and how deep would be too much for Pakistan." Therefore, the assumption that Pakistani nuclear threshold is 'low' is arbitrary, unrealistic, and unfashionable now. This study vilifies the assumption that Pakistani nuclear threshold is abysmally low.

Imagined Nuclear Threshold

Though the exact contours of Pakistan's nuclear threshold is unclear, Khalid Kidwai, the former head of Strategic Planning Division (SPD), in 2001 delineated four generic "redlines": spatial threshold (loss of large parts of territory), military threshold (destruction of large parts of land or air forces), economic threshold (economic strangulation), and political threshold (political destabilization or large scale internal subversion). Understandably these four redlines reinforce deterrence against an enemy who threatens Pakistan's 'survival'. In 2002 then-President Pervez Musharraf stated that "nuclear weapons are aimed solely at India," and would only be used if "the very existence of Pakistan as a state" was at stake. "Indeed, no Indian leader has considered threatening the survival of Pakistan."

However, pronouncements by Pakistani political and military leaders on various occasions to use nuclear weapons bring one the impression that Pakistan showcases a maximalist threshold posture even though it is aware of the illogic of climbing on the escalation ladder, thus losing its credibility. A day before the terrorist attack in Uri, Pakistan Defence Minister reportedly said that "We are always pressurized time and again ... that we have more tactical weapons than we need. If anyone steps on our soil and if someone's designs are a threat to our security, we will not hesitate to use those weapons for our defense." Expanding the threat to use nuclear weapons "beyond simply ensuring national survival is problematic." The nuclear threshold has to be higher than that for it to have any meaning. The cross-LoC strike by India in September 2016 has indeed exposed the "basic contradiction between the logic of Pakistan's nuclear threats and the illogic of actually carrying out such threats", aptly says, Prof. Rajagopalan.

The threat of use of TNWs by Pakistan did not deter India from limited conventional actions to punish Pakistan. The surgical strike by India has challenged the perceived 'low nuclear threshold' and "disgraced Pakistan's nuclear red lines and in all likelihood, pushed them back a bit." It tore

apart the escalation theory by Pakistan and proved Pakistan's nuclear sabre rattling bluff. C. Raja Mohan rightly observes that there is a growing belief in New Delhi that "the time has come to call Pakistan's nuclear bluff. If it does not, India places itself in permanent vulnerability to cross-border terrorism from Pakistan."

TNWs and Nuclear Threshold

Possession of TNWs by Pakistan is viewed to have significantly lowered nuclear threshold in South Asia. But introspection on the Pakistani calculation behind TNWs would reveal that "Pakistan is not seeking to exploit the military utility of TNWs"; rather it aims "to reclaim the space that India maintains exists for a conventional war even in the presence of nuclear weapons." If one extrapolates the Cold War experience to the South Asian environment, it would reveal that the motivation behind Pakistan's pursuit of TNWs against the conventionally superior India stems from NATO's perceived military inferiority against the Soviet Union. But Pakistan overlooks the reasons for which the U.S. withdrew most of the TNWs from Europe in 1991. Certainly, U.S. goal was to deter any conventional attack by the Soviet Union on Western Europe. It also wanted to avoid any escalation of the conflict to a full fledged nuclear war between them. But the TNWs were "proved to be useless militarily as nuclear use at the tactical level would lead to a strategic response and an uncontrollable escalation. Pakistan, however, has embraced this discarded strategy...."

The prevailing myth in Pakistan is that the "actions at the tactical or operational level have no strategic implications. Pakistan considers the TNW is a deterrent at best, and a war termination weapons at worst. When it comes to actual use of TNWs, as argued by Rajesh Basrur, Pakistan "will be self-deterred. ... The nuclear detonations that occur – even if limited – will be either within Pakistan's territory or so close to it that the fallout will likely affect its own population." As both India and Pakistan are introducing dual-use delivery vectors that "make it difficult to discriminate between incoming nuclear and conventional attacks".

According to Pakistani Foreign Secretary Aizaz Chaudhary (October 20, 2015), Pakistan is formalizing its plans to use this low-yield or so-called "tactical" nuclear weapons in a potential future conflict with India. But Pakistan has been quite on details on its redlines and parameters for use of TNWs. General Asad Durrani, former DG ISI Pakistan, said in 2003 that Pakistan does not "identify those core interests that, if threatened, could trigger a nuclear retort. These are elements of operational planning and stating them could betray a country's conventional limits." Given the opaqueness, Pakistan's nuclear threshold is subject to India's interpretation; undeterred by the TNWs India will decide on its own terms the level of Pakistani threshold – would be proportionate to India's concerns and grievances against Pakistani misadventure.

For example, a deep penetration by India into the barren desert area of Pakistan, in response to Pakistani-backed terrorist infiltration, is unlikely to breach its nuclear threshold. Air strikes against the terrorist infrastructure in POK not likely to evoke nuclear response either. Pakistan will not resort to nuclear weapons until the Indian defense forces advance well into PoK or threaten Pakistan side of Punjab. Therefore, fixing of nuclear threshold in South Asia would largely depend on the evolving circumstances, therefore will remain dynamic.

Also, one need to understand what factors lower the nuclear threshold in South Asia. Is it the miniaturization of nuclear warheads and short-range nuclear-capable vectors, or constant harping by Pakistan on the nuclear conflict scare? As India does not differentiate between 'strategic' and 'tactical' weapons, lowering of threshold does not bring any qualitative change.

Takeaways

Irrespective of Pakistani assertion of the low nuclear threshold, India will respond with conventional military force, may be limited in scope, to any Pakistani misadventure. Limited

conventional conflict remains a viable option in South Asia under the nuclear overhang. India would continue with the straightforward nuclear posture of 'deterrence by punishment', where 'strategic' or 'tactical' is irrelevant. Therefore, TNWs have little utility in South Asian context; especially no major advantages seem to accrue from them by Pakistan. The hardest lesson for Pakistan is that its "nuclear romanticism" based on the idea that NTWs can solve its conventional military imbalance vis-a-vis India only guarantees larger nuclear exchange.

Interestingly, 'denial' of occurrence of an offensive act by the enemy can be an effective strategy to sideline the pressure or compulsion to respond. Pakistan's denial of the surgical strike by India cross-LoC has effectively saved its face from humiliation. This provides scope and room for India to unleash further such strikes if situation warrants for the fact that this does not breach Pakistani nuclear threshold. In fact, the 1999 Kargil war, the 2001-02 crisis, and the surgical strike "can be seen as New Delhi's attempt to test Pakistan's nuclear threshold."

More importantly, Pakistan though has reserved the first-use of nuclear weapons option, it proclaims to use them as "the last resort...if Pakistan is threatened with extinction." If this is to be believed, Pakistan will first mobilize and exhaust all its conventional forces at its disposal. Though not comparable to India's, Pakistan has piled up a sizable conventional force and the limits of its conventional force must not be underestimated. Therefore, the perception of 'low nuclear threshold' must be viewed through the prism of "last resort" and limits of its conventional force.

Lastly, the role of international community in Indo-Pak conflict has been exaggerated. In fact, Pakistan assumes that in the case of a war, the international community will immediately intervene and stop India from continuing its conventional campaign or undertaking nuclear retaliation. With the ascendance of India's global clout along with its restraint behavior, New Delhi's response to Pakistani misadventures would not ring strong alarm bells, unlike before.

All these do not necessarily suggest India treat nuclear issues involving Pakistan carelessly. Pakistan is a risk-acceptant state capable of "irrational" strategic surprises. But India will "demonstrate to Pakistan that exaggerated nuclear bluff will no longer go unchallenged." Since nuclear weapons are here to stay, Indian forces have to be prepared to operate in a radioactive environment that may be forced upon them by Pakistani actions. Reportedly India is gearing for underground control rooms, NBC Protection Suits for its Armoured Personnel Carriers (APC), radiation proof shelters, monitoring technology, etc. which needs to be expedited.

<http://www.indrastra.com/2017/06/FEATURED-Pakistan-s-Nuclear-Threshold-Not-as-Low-as-Perceived-003-06-2017-0018.html>

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The Hill (Washington, DC)

Cuts to US bioterror funds risk peril in event of attack

By Daniel Gerstein

June 6, 2017

President Trump's proposed fiscal year 2018 budget would eliminate a Department of Homeland Security laboratory dedicated to countering bioterrorism and providing the science behind response and recovery efforts should an attack occur.

The proposal to eliminate this lab without creating replacement capabilities elsewhere could place the U.S. at risk at a time when biotechnology proliferation is increasing access to the knowledge and capabilities for developing bioterror weapons. To further emphasize this point, consider that Bill

Gates — who has given billions of dollars to global public health causes — recently said a bioterror attack could “wipe out 30 million people” and such an attack is becoming more likely.

The president’s proposed budget, if it were to be adopted by Congress, would zero out funding for the National Biodefense Analysis and Countermeasures Center (NBACC) at Fort Detrick, halting all science as of March 2018 and closing the facility by September 2018. NBACC was created in the aftermath of the anthrax attacks of October and November 2001 which sickened 22 people, five of whom died, and caused some 30,000 people exposed to the highly pathogenic anthrax to begin a regimen of high strength antibiotics. It also required the decontamination of several office buildings and postal handling facilities at a cost of approximately \$320 million.

Following the anthrax attacks, shortfalls in the nation’s bioterrorism preparedness and response capabilities became clearer. The U.S. lacked the facilities, procedures and people to examine threats at the intersection of terrorism and biotechnology and to conduct forensics in the event of a biological attack.

This threat characterization capability allows operators, law enforcement, public health and decisionmakers to understand the risk of a bioterror attack and the preparedness and response capabilities that should be developed. It also provides a scientific rationale for determining what equipment and medical countermeasures are stored in the strategic national stockpile maintained by the Centers for Disease Control and Prevention.

The NBACC’s scientists also are capable of conducting experiments to determine what level of concern is warranted if a potential threat is identified. The NBACC also has bioforensics analysis capabilities. This provides the ability to understand how and potentially where a pathogen was prepared, its virulence and physical characteristics and even what medical countermeasures and decontamination techniques might be the most effective. Much of the forensics work is done on behalf of the FBI, with the NBACC’s experts prepared to maintain chain of custody for samples and testify in court against bioterror suspects.

NBACC remains a one-of-a-kind facility that provides the U.S. an insurance policy. Its work can help determine how a variety of actors, from lone wolf terrorists to well-financed terror cells, could develop and deploy biological weapons against American targets. It allows experts to work in the highest containment laboratories with the most dangerous pathogens to protect the nation from a strategic threat, one that some have called “the poor man’s atomic bomb.”

The proliferation of biotechnology coupled with the increasing use of technology by terrorists suggests a growing likelihood of a bioterrorist attack. Al Qaeda, in a previous version of its Inspire magazine, had called for like-minded scientists — biologists and chemists — to conduct attacks. More recently, ISIS has called for attacks using available means. The degree to which the U.S. will be prepared to respond could be directly related to the preparations made now at NBACC.

Closing NBACC would leave the nation without these critical capabilities. No other such facility exists anywhere in the United States. It was established based on what the government determined to be a critical operational need. It is maintained at significant cost, and like most insurance policies, these costs may not be universally perceived as good investments until, God forbid, they might be needed in a crisis. In the event of a bioterror attack, NBACC would be on the front lines, providing essential information that would inform decisionmakers and save lives.

The initial proposal to zero out the capabilities currently invested in NBACC would seem at the very least worth a second look by policymakers. They should assess whether NBACC’s capabilities, as an insurance policy, is a price worth paying when weighed against the potential cost in human terms of even a limited bioterror attack.

<http://thehill.com/blogs/pundits-blog/healthcare/336565-cuts-to-us-bioterror-funds-risk-peril-in-event-of-attack>

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The Daily Signal (Washington, DC)

The Challenge of Modernizing Nuclear Weapons

By Michaela Dodge

June 12, 2017

The Senate Armed Services Committee hosted a hearing last week on defense nuclear acquisition programs and doctrine.

Gen. Robin Rand, commander of the Air Force Global Strike Command, offered a robust defense of the United States' follow-on intercontinental ballistic missile. He argued that extending the life of the currently deployed Minuteman III ICBMs would not be cheaper than building a follow-on ICBM.

Reliability and survivability are increasingly challenged in the current system, which was developed during the 1960s and 1970s. Rand mentioned how U.S. ICBMs complicate adversaries' targeting because of their quantity and geographic dispersion, also mentioning how they provide the president with a timely response option.

In combination with other elements of the nuclear triad, strategic submarines, and bombers, the system forces adversaries to spread their resources to take into account each of the legs of the triad as opposed to focusing on defeating one or two strategic systems.

Later, Robert Soofer, deputy assistant secretary of defense for nuclear and missile defense policy, argued that Russian violations of the Intermediate-Range Nuclear Forces Treaty are not sustainable and that the United States must take action and increase pressure on Russia on this issue.

He is correct. Russia has been using its violation to sow political discord within NATO in an effort to drive a wedge between the United States and its allies. Allies continue to be critical to U.S. national security interests.

Additionally, in the upcoming Nuclear Posture Review, the administration will have a unique opportunity to reassess a number of the Obama administration's misguided nuclear weapon policies insofar as they were based on an assumption of a fundamentally different, and friendlier, relationship between the two countries.

North Korea's ballistic missile program has been a focus of concern for the committee as well. With its latest ballistic missile test, North Korea demonstrated progress on the re-entry vehicle that could be used to deliver a nuclear weapon.

The United States finds itself consistently underestimating North Korea's ballistic missile capabilities and the speed with which they are developed.

The United States currently fields the ground-based midcourse defense interceptors, the only system to protect the U.S. homeland from the North Korean long-range ballistic missile threat. The program achieved a successful intercept last week, for the first time ever demonstrating a capability to shoot down an ICBM target.

Vice Admiral Terry Benedict, director of the U.S. Navy Strategic Systems Programs, offered a strong defense of the sea-based strategic deterrent. The United States is planning on replacing the Ohio-class strategic submarine with the Columbia-class strategic submarine in the future.

Submarines are the most survivable leg of the strategic triad. To help manage cost concerns, the Navy and the Air Force are exploiting missile commonality. Additionally, the United States and the United Kingdom continue their cooperation on the Trident D-5 submarine-launched ballistic missiles.

Finally, James MacStravic, performing the duties of undersecretary of defense for acquisition, technology, and logistics, offered a strong defense on the need to continue nuclear weapons modernization and recapitalization of the nuclear triad.

If modernization efforts do not continue, the United States runs “the risk of creating critical capability gaps as legacy systems reach the end of sustainability—negatively affecting the credibility of the nation’s strategic deterrent.”

Stability of the supply chain and modernization of the command, control, and communications networks were other topics of a great interest to members of Congress. Rightfully so. The United States must ensure secure and reliable communications, including in crisis situations.

Similarly, it is essential that microchips and electronics in the upcoming modern systems are not compromised.

In sum, there is no shortage of challenges for the Department of Defense, the administration, and Congress as modernization of the nuclear enterprise continues.

The hearing outlined important challenges that the nuclear weapons modernization program will face in the future. The administration and Congress must work together to ensure the U.S. nuclear arsenal remains safe, secure, reliable, and militarily effective.

<http://dailysignal.com/2017/06/12/challenge-modernizing-nuclear-weapons/>

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Foreign Affairs (Washington, DC)

Keine Atombombe, Bitte: Why Germany Should Not Go Nuclear

By Ulrich Kuhn and Tristan Volpe

June 13, 2017

The election of U.S. President Donald Trump last November confounded Berlin. What, German politicians, policymakers, and journalists wondered, should they make of Trump’s vague or even hostile stances toward the EU and NATO or his apparent embrace of Russia? Some hoped that Trump meant to push NATO members to spend more on defense but would, in the end, leave the long-standing U.S. guarantee of European security intact. Others, less optimistic, argued that the days when Germany could rely on the United States for its defense were over—and that the country must start looking out for itself.

Those fears have given new life to an old idea: a European nuclear deterrent. Just days after Trump’s election, Roderich Kiesewetter, a senior member of Chancellor Angela Merkel’s Christian Democratic Union, said that if the United States no longer wanted to provide a nuclear shield, France and the United Kingdom should combine their nuclear arsenals into an EU deterrent, financed through a joint EU military budget. Then, in February, Jaroslaw Kaczynski, the leader of Poland’s ruling Law and Justice party, spoke out in favor of the idea of the EU as a “nuclear superpower,” as long as any EU deterrent matched Russian capabilities.

Some German commentators even suggested that those proposing a British-French deterrent under the auspices of the EU didn't go far enough. Berthold Kohler, one of the publishers of the influential conservative newspaper *Frankfurter Allgemeine Zeitung*, argued that the British and French arsenals were too weak to take on Russia. He suggested that Germany consider "an indigenous nuclear deterrent which could ward off doubts about America's guarantees." Other German analysts, such as Thorsten Benner, head of the Global Public Policy Institute, in Berlin, and Maximilian Terhalle, a scholar of international relations, have come to the same conclusion. "Germany needs nuclear weapons," Terhalle wrote in *Foreign Policy* in April.

The halcyon era for Germany ended abruptly in 2009.

For now, those calling for a German bomb are a fringe minority. For decades, Germany has stood as one of the world's staunchest supporters of nuclear nonproliferation and global disarmament. In February, a spokesperson for Merkel told the press, "There are no plans for nuclear armament in Europe involving the federal government." She and others evidently recognize that such plans are a bad idea: a German arsenal would destabilize EU-Russian relations and heighten the risk that other countries would attempt to go nuclear.

But even though Germany's current nuclear flirtation may reflect nothing more than a passing reaction to Trump's presidency, it reveals a deeper problem: insecurity in Berlin, caused by years of meandering U.S. policy toward Russia and Europe. To solve this problem, Germany and the United States must work together. Merkel's government should encourage the EU to coordinate more effectively on defense. The Trump administration, meanwhile, should double down on the U.S. commitment to the success of the EU and NATO while also pushing for broader negotiations with Russia over the future of European security.

THE SHADOW OF THE PAST

Over the last decade, Europe has experienced a series of intensifying crises, culminating in Russia's annexation of Crimea in 2014. Each time, Germany, as the EU's largest country, has led the response. In 2015, for example, Germany led the negotiations between Russia and Ukraine that resulted in a shaky cease-fire. But every time Germany takes the lead, its neighbors recall history and grow nervous about German hegemony over Europe.

Such fears go back at least as far as the creation of the modern German state in 1871. From then until the country's partition after World War II, European leaders confronted "the German question," a simple but unsolvable dilemma. Germany's size meant that no single European country could ever balance its economic or military power. Yet Germany was never powerful enough to rule over Europe alone. Part of the problem stemmed from the country's so-called *Mittellage*, its location at the center of Europe, surrounded by potentially hostile coalitions. Germany responded to external threats by pursuing what historians have called its *Sonderweg*, or "special path," a term used to describe the country's affinity for authoritarian rule and attempts to impose that rule throughout Europe. Whenever it did that, the resulting wars devastated the continent.

Germany's partition—after Hitler led the country's last and most disastrous attempt to rule over Europe—temporarily solved these problems. West Germany could not dominate Europe during the Cold War since the struggle between the East and the West subsumed European rivalries. And after reunification, in 1990, the institutional bonds of the EU and NATO prevented the German question from recurring. Surrounded only by friends, Germany did not have to worry about its *Mittellage*. At the same time, the U.S. military retained a limited presence in Europe (including Germany), and the former western Allies successfully transformed Germany into a peaceful and democratic nation, making the pursuit of *Sonderweg* unthinkable. The U.S. security guarantee also allowed Germans to

maintain their largely antimilitaristic stance, reap the economic benefits of peace, and, at times, claim the moral high ground over Washington for its overreliance on military power.

This halcyon era for Germany ended abruptly in 2009. The Great Recession and the subsequent EU debt crisis led many EU countries to demand German leadership. But when Germany imposed its solutions on the rest of the continent—for example, by insisting that southern European countries follow austere economic policies—it triggered accusations of rising German hegemony. In 2015, for example, the ruling Greek Syriza party claimed that Germany had threatened “immediate financial strangulation” and “annihilation” of Greece if the Greek government rejected the harsh terms of the proposed EU bailout.

The first major shock to European security came in 2014, when Russia invaded Ukraine. Merkel’s once pragmatic relationship with Russian President Vladimir Putin deteriorated rapidly. Sidelining the United States, Germany joined France in brokering a shaky truce in eastern Ukraine, led EU efforts to impose sanctions on Russia, and sent German forces to reassure nervous Baltic NATO allies. Years of mercurial U.S. policy toward Moscow that veered back and forth between efforts to repel Russian influence in eastern Europe and attempts to “reset” the strained relationship left Germany with little choice but to take the lead.

Against this backdrop, Trump’s election heightened the tensions among competing factors: the need for German leadership, the limits of German power, and Europe’s intolerance of German dominance. During the campaign, Trump displayed indifference to the possible breakup of the EU and praised nationalist political movements such as the Brexit campaign, a stance that threatened Germany’s core political identity as the heart of the EU and put pressure on Berlin to defend the union. Worse still, by declaring NATO “obsolete,” Trump undermined the system that has kept Europe safe and Germany restrained for over half a century.

☐ Nuclear weapons cannot deter the kind of limited wars Russia has waged so successfully in Crimea and eastern Ukraine.

But worst of all, by appearing to cozy up to Putin, Trump put Germany in a new *Mittellage*—this time between the White House and the Kremlin. The effect was not confined to Germany; the prospect of a rapprochement between Putin and Trump has left the entire EU in an uncomfortable position. In January, when Donald Tusk, the president of the European Council, ranked the threats facing the EU, he highlighted not just the traditional menaces of jihadism and Russian aggression but also “worrying declarations by the new American administration.” Across the continent, leaders feared that Trump would support populist forces seeking to break up the EU or trade away the U.S. nuclear guarantee of European security in a grand bargain with Russia.

A DANGEROUS IDEA

Should Europe find itself caught between a hostile Russia and an indifferent United States, Berlin would feel pressure to defend Europe militarily rather than just politically. But then it would face the problem of how to guarantee European security without reviving fears of German hegemony. And if Germany boosted its military power without integrating it into the European project, that might well lead to German isolation and the breakup of the EU.

Nuclear weapons seem to offer Germany a way out of this impasse. In the eyes of their proponents, they would deter existential threats and reduce European dependence on the United States without raising fears of German dominance. “Nuclear power projection on the part of Berlin would be accepted as legitimate,” Terhalle wrote, because “World War II has no real political weight in today’s relations.” Instead, it is the “perception of threat from Russia” that determines policy in central and eastern European countries. This claim rests on a shaky foundation. Russia’s actions in eastern Ukraine may be driving European nations together, but the fear of a German resurgence has

not gone away entirely. If Germany built nuclear weapons, the EU's current unity would quickly fracture.

Even if the rest of the EU accepted German nuclear weapons, that would not end Europe's security woes. Nuclear weapons cannot deter the kind of limited wars Russia has waged so successfully in Crimea and eastern Ukraine, whoever provides the deterrent. Even simply replacing the U.S. nuclear deterrent for Europe with a German- or EU-led one would not be easy. The United States struggled for much of the Cold War to convince the Soviet Union that it would defend West Berlin with nuclear weapons, especially given the Soviets' conventional military superiority; Germany would face the same problem as it tried to persuade Russia of its willingness to use nuclear force to defend other EU countries, especially the Baltics, which are under the greatest threat from Russia.

Both France and the United Kingdom already possess nuclear weapons. Their experiences offer mixed lessons of the benefits of a nuclear arsenal. Both gained some independence from the United States after fielding their own nuclear forces, yet both still relied on the United States to supply conventional military force in Europe, and neither country's nuclear arsenal could match the Soviet Union's. Nor did their nuclear forces do a great deal to improve NATO's collective defense. Only the United Kingdom pledged to use its deterrent to defend other NATO members, while France stayed outside NATO's nuclear structure. And it took the United Kingdom a great deal of time and effort to make its commitment credible. Germany should remember that simply possessing nuclear weapons does not automatically make allies more secure.

Regardless of the ultimate effect of a nuclear arsenal, Germany would have to surmount major technical, political, and security hurdles before acquiring one. It would need to either repurpose its nuclear energy infrastructure for weapons production or sprint to the bomb from new military facilities. Either path would take substantial time and effort. Each would involve activities that, if detected, would ring alarm bells. Germany would struggle to keep any effort to build nuclear weapons in military facilities secret given the vast construction work this would involve. Nor could it simply rely on its civil nuclear infrastructure. In the wake of the 2011 Fukushima nuclear accident in Japan, Merkel's government decided to phase out all of Germany's nuclear power plants by 2022. This decision makes it difficult for Germany to take technical steps toward the bomb under the guise of a peaceful program. Even seemingly innocuous moves, such as keeping a few large reactors online past the deadline, would raise suspicions.

In any case, the time would eventually come when Germany could no longer hide its nuclear ambitions. At that point, the German government would face intense domestic political opposition and perhaps even civil unrest from a population that determinedly opposes nuclear weapons. A March 2016 poll found that 93 percent of Germans favor an international ban on nuclear weapons and that 85 percent would like to see the United States remove all its nuclear weapons from Germany. The German population would not back a public nuclear weapons program, and any leader who authorized a clandestine effort would face political ruin.

Moreover, a German nuclear arsenal would risk bringing down the international nonproliferation regime. Before acquiring the bomb, Germany would have to leave the Nuclear Nonproliferation Treaty, a move that would threaten the continued existence of the treaty itself. Despite the NPT's successful record, the treaty's future already looks uncertain. Under the NPT, states with nuclear weapons agreed to pursue disarmament, but in recent years, progress toward this goal has stalled, and nonnuclear states have increasingly voiced their frustration that the nuclear weapons states have not fulfilled their promise. A foundational goal of the treaty, moreover, was to keep Germany from building nuclear weapons. If Berlin defected, the nonproliferation regime might collapse entirely, because other countries would no longer feel bound by the treaty's collective bargain.

Germany would also need to modify or withdraw from the so-called Two Plus Four Treaty, the agreement on reunification that East and West Germany signed with France, the Soviet Union, the United Kingdom, and the United States in 1990. In that document, Germany affirmed its “renunciation of the manufacture and possession of and control over nuclear, biological, and chemical weapons.” The treaty was meant not only to end the Cold War but also to prevent any future German *Sonderweg*; abrogating it would bring back the German question and deliver an affront to the four countries that paid such enormous costs to defeat Nazi Germany in World War II.

Worst of all, the pursuit of a German nuclear arsenal, rather than deterring aggression, could increase the risk of conflict in Europe, since Russia would likely work to prevent Germany from acquiring the bomb. Moscow could assassinate German nuclear scientists, use cyberattacks to sabotage German nuclear industrial infrastructure, and perhaps go so far as to strike German nuclear facilities from the air. Even covert operations could quickly spiral into outright confrontation.

Even if Germany managed to acquire nuclear weapons, it would then face the daunting task of making sure they could survive a Russian attack. In recent years, Russia has moved its missiles westward, targeting Germany and other NATO members. Now that Russia has allegedly deployed multiple cruise missiles in violation of the 1987 Intermediate-Range Nuclear Forces Treaty, under which the Soviet Union and the United States agreed to abandon midrange missiles, its ability to destroy a fledgling German nuclear stockpile is only growing. Unless Germany managed to conceal and protect its nuclear weapons almost immediately, German leaders could, during a crisis with Russia, feel pressure to launch a preemptive nuclear attack against Russia in order to avoid losing the arsenal to a Russian first strike.

These formidable barriers to a German nuclear program have led some to return to the idea of a British-French deterrent. But the United Kingdom’s impending departure from the EU leaves Germany with the sole option of reaching out to France. This would not be the first time that France and Germany have considered a joint European nuclear deterrent. In 1957, shortly after the Suez crisis, when tensions between France and the United States were running high and the French government began to doubt the credibility of the U.S. nuclear guarantee, France suggested to Italy and West Germany that the three countries develop nuclear weapons together. The next year, French President Charles de Gaulle took office and quickly canceled the secret negotiations and began an indigenous French nuclear program, only to raise the prospect of nuclear cooperation again with German Chancellor Konrad Adenauer in 1962. And in the 1990s, France offered to extend its nuclear umbrella to Germany after reunification in an attempt to decrease U.S. influence in Europe. All these efforts failed, in part because the French consistently refused to relinquish control over their arsenal, as to do so would have been to give up French autonomy in foreign policy. This calculus has not changed, a fact that should give German policymakers pause today. Moreover, by reviving such talk, Berlin risks giving isolationist elements in the Trump administration exactly what they want: an excuse to disengage.

STRONGER TOGETHER

Nuclear weapons will not solve Europe’s current woes, but Washington should not dismiss German nuclear yearnings, as they reflect a growing sense of uncertainty in Berlin. This uncertainty stems from an incoherent U.S. policy toward Russia, which began well before Trump took office. Since 2000, Washington has faced competing policy options: focus only on defending NATO allies and containing Russia; offer indefinite support to former Soviet states, such as Georgia and Ukraine, that struggle under Russian dominance; or cooperate with Russia to tackle global security challenges.

The United States has experimented with all three. It has welcomed new countries into NATO despite dire, if vague, warnings from Russia. Washington continues to keep the door to the alliance

open in the hope that former Soviet states will eventually join, but it lacks the resolve to force Moscow to respect the sovereignty of countries such as Georgia and Ukraine. At the same time, successive U.S. administrations have tried to cooperate with the Kremlin on various issues, such as counterterrorism and stopping the Iranian nuclear program.

Nuclear weapons will not solve Europe's current woes, but Washington should not dismiss German nuclear yearnings.

Three years after the annexation of Crimea and the start of the war in Ukraine, Washington has yet to choose a clear policy. This inconsistency, coupled with Russian aggression, has led Europe to the brink of a new Cold War. Add to this Trump's erratic stances toward Russia and NATO, and it is not surprising that Europeans are asking what Washington's long-term priorities really are and how the United States intends to achieve them.

This crisis in transatlantic relations presents many perils, but it also offers opportunities for leaders in Berlin and Washington. For Germany, that means taking practical steps to increase Europe's ability to provide for its own conventional security, not proposing dangerous nuclear fantasies. Germany should not focus on NATO's blunt spending goal of two percent of GDP but instead seek closer cooperation among national EU militaries; contribute larger and better-equipped forces to the EU Battlegroups; encourage EU countries to avoid duplicating one another's military R & D, production, and procurement; overcome German national pride and work to develop a common European defense industry; and increase the resilience of EU states to Russian propaganda.

For its part, Washington must recognize the limits of U.S. power and focus on strengthening its existing alliances in Europe. To that end, it should send more high-ranking officials to the Baltics and deploy another light battalion to the region to reinforce U.S. security commitments to NATO's most vulnerable eastern members. Washington should also probe whether Moscow's aims are limited to protecting its core interests in the former Soviet states or whether the Kremlin has broader ambitions. To this end, U.S. officials should put the option of ending NATO's open-door policy on the table during future negotiations with Russia over the war in eastern Ukraine. Should this strategy fail to stop the Kremlin from threatening NATO members, the United States could always return to its proven approach of containment.

For this policy to work, Germany must play its well-established role of interlocutor. Washington should take up a long-standing German suggestion to embark on a round of negotiations concerning European security among Russia, the United States, and all European countries. In 1975, a similar meeting in Helsinki improved communication between the Soviet and U.S. militaries and produced a tentative commitment to respect individual rights and freedoms. EU and U.S. officials should aim for an agreement that increases the security of both NATO members and Russia, ends the bloodshed in Ukraine, and helps develop the economies of former Soviet states. Past U.S. administrations have shown few signs that they believe in such a vision. The Trump administration should take this opportunity to rethink U.S. policy.

As the sudden desire for nuclear weapons in Germany demonstrates, even offhand remarks calling into question European security can have serious consequences. So the Trump administration should change its tune and instead buttress the EU and NATO whenever possible. It should also offer a broader vision for Russian and European security. U.S. leadership would allow Germany to delicately balance the EU's need for direction against its fears of German hegemony. Together, Germany and the United States can renew the transatlantic bonds on which Europe is built.

<https://www.foreignaffairs.com/articles/germany/2017-06-13/keine-atombombe-bitte>

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The Independent (London, UK)

This is Why Iran Should Play a Major Role In the Negotiations to Ban Nuclear Weapons

By Seyed Hossein Mousavian

June 15, 2017

Iran is the only country that has banned the use of WMDs with religious edicts at the highest levels

Since the advent of nuclear weapons, nations and grassroots movements across the world have sought to eliminate the risk they pose to life on Earth through nuclear prohibition and disarmament.

The foundation for these efforts has been the 1968 nuclear Non-Proliferation Treaty (NPT), Article VI of which calls on its 190 signatories for “a treaty on general and complete disarmament under strict and effective international control”.

Last autumn, 123 states issued a call on the United Nations for a nuclear ban treaty, which led to a draft of a legally-binding text to prohibit nuclear weapons on 22 May 2017.

Now, from 15 June-7 July, representatives from roughly 130 nations will negotiate the final text and try to make the treaty a reality. Sadly, all the recognised nuclear-weapons states and their allies have voiced strong opposition to the historic talks.

Though the five recognised nuclear powers are signatory to the NPT and have been obligated to pursue disarmament for nearly 50 years, they have not only failed to do so but now have far-reaching plans to upgrade and extend the lifespans of their nuclear weapons.

Even more egregious, they have de facto supported the proliferation of nuclear weapons by establishing strategic relations with countries like India, Pakistan and Israel, which have rejected the NPT and amassed sizeable weapons arsenals.

All told, there exist about 15,000 nuclear weapons in the world today, of which the US and Russia possess around 7,000 each. America’s nuclear modernisation program alone is estimated to cost the country \$1 trillion over the next 30 years.

Since the NPT went into effect, the reality has been that the world has been split between the haves and have-nots of nuclear weapons, and the haves have been able to selectively agree on the new haves. This longstanding status quo has now led to a majority of nations – cognisant that the world has been held hostage to the weapons stockpiles of the nuclear-armed states – to push for a prohibition treaty, to put political and legal restraints on the possession of nuclear weapons.

One state supporting the ban treaty negotiations, Iran, can play a unique role in making the talks a success. Three chief reasons explain why Iran can and should be a strong advocate to advance the causes of nuclear non-proliferation and the elimination of all weapons of mass destruction (WMDs).

First, the July 2015 nuclear deal agreed to by Iran and six major world powers – formally known as the Joint Comprehensive Plan of Action (JCPOA) – sets a new global nuclear non-proliferation standard far stronger than the NPT. As President Obama has stated, the deal cuts “off every single one of Iran’s pathways to a [...] nuclear weapons program,” and establishes the “most comprehensive and intrusive inspection and verification regime ever negotiated”.

Consequently, the JCPOA can serve as a new basis for the verification and enforcement provisions of the disarmament treaty that the prohibition treaty will call for. To this end, Iran can play an instrumental role in pushing for the globalisation of the JCPOA’s principles, and can even position itself as a regional nuclear fuel hub as part of future prohibition and disarmament treaties.

Second, Iran's long-established track record of seeking to advance the cause of nuclear non-proliferation gives it a responsibility to continue its role of spearheading non-proliferation initiatives.

In 1974, Iran first proposed a Middle East nuclear-weapon-free zone (ME-NWFZ) at the UN General Assembly, which was passed by the body and has been renewed annually since 1980. The ban treaty negotiations provide Iran and other regional states the opportunity to realise a ME-NWFZ.

Third, Iran is the only country that at the highest religious levels has issued religious edicts banning WMDs. Iran's position in this regard was shaped during the 1980s Iran-Iraq War, during which it was the victim of WMDs in the form of chemical weapons attacks, but refused to retaliate in kind due to religious considerations.

This was due to a fatwa, or religious decree, by Iran's revolutionary father Ayatollah Imam Khomeini, against the production or use of chemical, biological, or nuclear weapons. Iran's current Supreme Leader Ayatollah Ali Khamenei has upheld this fatwa, uniquely binding Iran to be unequivocally against WMDs of all kinds and making it a sincere voice in any WMD-prohibition debate.

The ban treaty negotiations represent a potential major historical turning point, where a majority of the world's nations will act to safeguard humanity's future from the threat of nuclear holocaust. While the nuclear-weapons states argue that they need their weapons for reasons of deterrence and strategic balance, their logic does not hold in a world where their nuclear-weapons monopoly is unsustainable.

Increasingly, other countries may seek the same status relying on the same logic as the five-recognised nuclear-weapons powers. The North Korean case serves as an example of how an NPT member may leave the treaty and develop nuclear weapons.

If global peace and stability is to be ensured for future generations, a new model for international security must be created, one that does not rely on WMDs of any kind.

Iran, given its longstanding commitment to the non-proliferation of WMDs, must play a decisive role in ensuring the success of the nuclear ban treaty negotiations to bring about such a world.

<http://www.independent.co.uk/voices/iran-nuclear-disarmament-global-peace-usa-weapons-of-mass-destruction-a7789201.html>

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About CUWS

The USAF Counterproliferation Center was established in 1998 at the direction of the Chief of Staff of the Air Force. Located at Maxwell AFB, this Center capitalizes on the resident expertise of Air University, while extending its reach far beyond - and influences a wide audience of leaders and policy makers. A memorandum of agreement between the Air Staff Director for Nuclear and Counterproliferation (then AF/XON), now AF/A5XP) and Air War College Commandant established the initial manpower and responsibilities of the Center. This included integrating counterproliferation awareness into the curriculum and ongoing research at the Air University; establishing an information repository to promote research on counterproliferation and nonproliferation issues; and directing research on the various topics associated with counterproliferation and nonproliferation.

The Secretary of Defense's Task Force on Nuclear Weapons Management released a report in 2008 that recommended "Air Force personnel connected to the nuclear mission be required to take a professional military education (PME) course on national, defense, and Air Force concepts for deterrence and defense." As a result, the Air Force Nuclear Weapons Center, in coordination with the AF/A10 and Air Force Global Strike Command, established a series of courses at Kirtland AFB to provide continuing education through the careers of those Air Force personnel working in or supporting the nuclear enterprise. This mission was transferred to the Counterproliferation Center in 2012, broadening its mandate to providing education and research to not just countering WMD but also nuclear deterrence.

In February 2014, the Center's name was changed to the Center for Unconventional Weapons Studies to reflect its broad coverage of unconventional weapons issues, both offensive and defensive, across the six joint operating concepts (deterrence operations, cooperative security, major combat operations, irregular warfare, stability operations, and homeland security). The term "unconventional weapons," currently defined as nuclear, biological, and chemical weapons, also includes the improvised use of chemical, biological, and radiological hazards.

The CUWS's military insignia displays the symbols of nuclear, biological, and chemical hazards. The arrows above the hazards represent the four aspects of counterproliferation - counterforce, active defense, passive defense, and consequence management.

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